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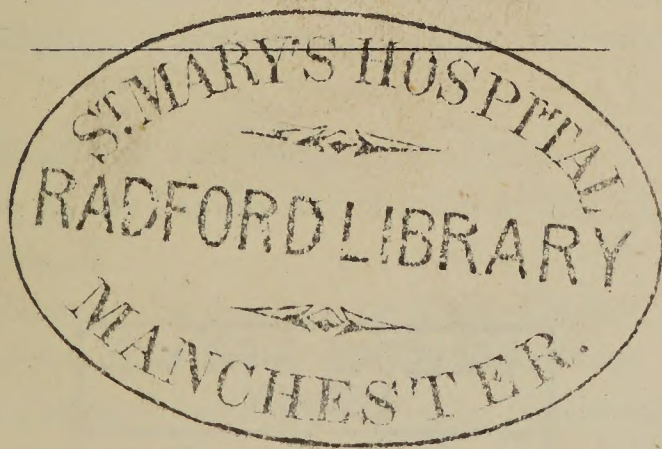


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OF
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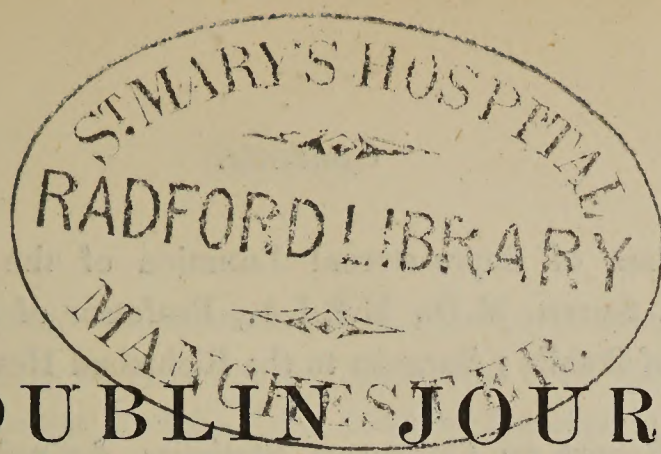
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THE DUBLIN JOURNAL
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We have been obliged to hold over several Original Communications, Reviews, and Clinical Records.

Authors of Communications are requested to write the prescriptions in their papers in full, and in English.

Books and Periodicals published in Northern Europe and the German States intended for our Journal, should be transmitted "For the Editor of the Dublin Journal of Medical Science, care of Messrs. TRUBNER and Co., *London*," through the following Houses, viz.:—Messrs. SCHNEIDER and Co., *Berlin*; Messrs. BRAUMULLER and SON, *Vienna*; M. F. A. BROCKHAUS, *Leipzig*; and also their Correspondents in the principal Towns on the Continent. Our Correspondents in France, Belgium, Italy, and Spain, are requested to communicate with us through "Messrs. HACHETTE and Co., 77, *Boulevard St. Germain, Paris*."

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THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

JULY 1, 1872.

PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*A Case of Popliteal Aneurism Cured by Pressure.* By
JOHN K. BARTON, F.R.C.S.I., M.D., T.C.D.

ALTHOUGH the treatment of popliteal aneurism by pressure is now so well established as to need no further record of successful cases to prove its advantages, yet it is only by the publication of numerous cases, both successful and unsuccessful, that we can become fully possessed of the best means of fulfilling the object aimed at.

In undertaking the case of a popliteal aneurism by pressure, the object to be aimed at is not only the solidification of the tumour, but also to accomplish this (1) in the shortest possible time; (2) with the smallest possible suffering to the patient; and (3) without injury to the integument.

The plan adopted in the following case fulfilled these indications very well.

Iodide of potassium was given during the entire time of the treatment; how far this may have influenced the solidification of the tumour must remain very uncertain; but it is a curious fact that a drachm of this salt could be taken daily, for ten days, without producing any unpleasant symptoms.

The notes of the case were taken by Mr. Heath, resident pupil, who watched the case, and carried out the treatment with the greatest possible attention.

Thomas Latimar, a shoemaker, 32 years of age, presented himself at the Dispensary of the Adelaide Hospital, upon the morning of May 24, 1872, to obtain advice for a swelling in the ham of the left leg.

Dr. Ward having examined him, at once diagnosed the case one of popliteal aneurism, and sent him into hospital, where he was admitted under Dr. Barton's care. Upon examination, the following facts were noted:—The patient is a slight well-formed man, of middle stature. In the left popliteal space a pulsating tumour can be felt, rounded in shape, and about the size of a hen's egg—the pulsation is very strong and distensile, being nearly as forcibly felt on either side as directly behind. Pressure on the femoral artery at once causes the pulsation in the tumour to stop. No bruit can be heard in the tumour; the posterior and anterior tibial arteries can be felt, same as those of the other limb. The tumour in the ham is painless, and the ordinary colour of the skin. A soft murmur can be heard, but indistinctly, accompanying the second sound of the heart; most audible at the base of the organ.

History.—Had rheumatic fever about ten years ago; was in hospital about 18 months ago for dropsy following scarlatina; after recovering from which, suffered from palpitation of the heart. About six months ago, began to feel a stiffness of the left knee, and in a month from the time he first felt the stiffness, he noticed a tumour behind the knee, and at the same time experienced a dull aching pain about the knee, and great difficulty in fully straightening the limb, which felt most comfortable semi-flexed, and, as his trade allowed it, was usually kept in a bent position. This pain got better when the limb had been kept at rest for some time, but returned severely, upon the patient indulging rather largely in porter, and subsequently, whenever stimulants were indulged in, the pain came back, and each time it returned it was more intense than before. He never received any hurt, wound, strain, or other injury to which he could refer the appearance of the tumour. There are cicatrices in the groin of a suppurating bubo, but no signs of syphilis. The patient has cramps in the calf of the leg frequently. The affected limb measured round the knee half an inch more than the other.

Saturday, May 25th.—He was ordered to take three times a day twenty grains of iodide of potassium and one drachm of the syrup of the iodide of iron, and to remain strictly in bed; the hair was ordered to be shaved off from the left groin, and the skin in this region to be bathed several times a-day with spt. of camphor.

Monday, 27th.—The following arrangements were made for applying pressure:—A Skey's tourniquet, adapted to press the artery as it crosses the ramus of the pubis. A clamp, invented by Dr. Barton for another case, was applied about the middle of the thigh to press the artery in Hunter's canal. The object of the second instrument was to relieve the groin occasionally, and when it became necessary to relax the pressure at the groin, still to command the circulation through the tumour. Several students volunteered to sit by the patient all day, and see that the pressure was steadily maintained.

The pad of Skey's tourniquet was screwed down, and the pressure commenced at 11.10 a.m. No pulsation whatever in the tumour; no pain complained of. At 1.15 the clamp was tightened, and the tourniquet loosened, as the pain of its pressure was much complained of. At 2.30 the tourniquet was re-adjusted, the clamp being painful. Patient complained of cramp in the calf of the leg, and shooting down to the foot. At 5.30 a hypodermic injection of one-fourth of a grain of morphia was given, with the effect of enabling the patient to bear the pressure without any complaint of pain up to five minutes of 11 o'clock p.m., when all pressure was removed for the night. Scarcely any pulsation was to be felt at this time in the tumour.

Tuesday, 28th, 9 a.m.—Pulsation in the tumour distinct; but not at all so violent as before the treatment was begun. Skey's tourniquet re-applied at 11.15; no pain complained of; all pulsation at once ceased in the tumour. Pressure by means of this instrument was kept up all day, the patient complaining of occasional pain, which was relieved by a re-adjustment of the pad. At 11 p.m. he complained of severe pains. The instrument was then loosened, and the tumour was found upon examination to remain quite pulseless. The instrument was, however, re-applied upon a new spot; it was left on all night, but became displaced during sleep, so that probably very little pressure was made during the night.

29th.—Upon examination at 10 a.m., the instrument having been entirely removed for three hours, a slight thrill only could be felt in the tumour.

Under these circumstances, a weight of $3\frac{1}{2}$ lbs. was adjusted so as to rest on the artery just before it crossed the pubis, and consequently a little above the spot pressed upon yesterday by the pad of the tourniquet—a bandage secured the weight in position. This was sufficient to arrest the circulation in the aneurism, for no thrill whatever could be felt after it was put on. The patient felt no pain from the pressure, a full or tense feeling in the calf of the leg being the only uneasiness complained of. He passed the day and following night without any re-adjustment of the weight being necessary.

30th.—Upon removal of the weight this morning all pulsation in the tumour was found to have ceased. All pressure was now removed; a chloride of lime lotion was applied to the groin where the skin was discoloured and a little vesicle had formed.

The limb was kept at rest by means of a long outside splint. The clamp being put round the limb, but not tightened, but ready to be screwed tight if any pulsation returned in the tumour.

31st.—The clamp had not to be tightened at all yesterday or last night—tumour remaining quite pulseless. The collateral circulation is well established, a large branch pulsating in the inside of the knee.

June 1st.—Skin in the groin, which had suffered from the pressure, is fast recovering itself; tumour remains pulseless; foot and leg bandaged with pad of cotton wadding in popliteal space; and foot secured to end of bed to prevent motion; splint removed.

June 6th.—Allowed up—not to walk—to go about in a wheeled chair.

Patient is well in every respect.

As seen by the above notes, 60 hours was the full time during which pressure was applied in this case. Of these 60 hours 24 only were occupied by firm pressure; the remaining 36 by a light pressure, sufficient to check circulation in the tumour; but not enough either to produce much pain or to endanger the integument. That the popliteal artery no longer conducts the blood to the leg is proved by the fact of the distinct enlargement of the collateral channels; and it, therefore, may be presumed that the pressure employed was sufficient to arrest the circulation through the vessel altogether.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Science and Practice of Surgery. By FREDERICK JAMES GANT, F.R.C.S., Surgeon to the Royal Free Hospital, formerly Surgeon to Her Majesty's Military Hospitals, Crimea and Scutari. Pages 1265.

THE author in his preface to this book enumerates its leading features in the following words:—

“In describing the various forms of Injury and Disease, I have endeavoured to present a sound and enlarged view of Surgical Pathology; but exhibiting more particularly the guiding elements of their pathology, whether for the purpose of study or reference. . . .

“The primary importance of all that pertains to the Diagnosis, or detection and discrimination of morbid conditions, has induced me to introduce a brief description of the healthy Anatomy of the part; wherever this seemed necessary or convenient, to clearly understand the nature of the structural alterations in Disease or Injury; or for guidance in Surgical Operations.”

The author expects that these features will adapt the work “for the use of students as a surgical text-book, while the wide range of subjects may render it more completely serviceable to the practitioner for reference.” The fact that the concluding chapter of the work is published as a guide to the examinations for the diplomas of Member and Fellow of the Royal College of Surgeons of England indicates that the author has chiefly had in view the requirements of a student's text-book in its composition.

We propose to examine it chiefly with reference to its accomplishment of this object.

Selecting at random from some of the descriptions of the “healthy anatomy,” considered by the author “necessary or convenient,” we collect the following statements:—

“Situations of normal bursæ.—In the following situation (*sic*), bursæ exist naturally, and are subject, therefore, to injury or disease—behind the

angle of the lower jaw, on the symphysis of the chin, on the two malleoli of the tibia.

“Its boundaries (those of the inguinal canal), and thence the relations of inguinal hernia in the canal are thus formed; anteriorly by both abdominal oblique muscles over the outer half-inch of the canal, and the aponeuroris of the external oblique alone, the inner inch. .

“This displacement (the angular displacement occurring in transverse fractures of the bones of the leg), is produced by the flexor muscles of the calf drawing the bones backwards.”

Wherever the author discourses on anatomy his teaching abounds with errors similar in character to those which we quote. Had the author copied his anatomical descriptions from any established text-book of anatomy he could have avoided exposing his want of acquaintance with the subject, an expedient which he need not have hesitated to adopt, as he has so fully availed himself of it in other matters. We will now turn for a moment to another view of the work before us. The author in his introduction lays much stress on the importance of diagnosis, based on pathological anatomy, as “its earliest and most exact source,” and naturally leads us to expect that in so voluminous a work on the science and practice of surgery we should find much of interest in this department to compensate for the shortcomings of the anatomical sections.

The following is an instance of the author's method of diagnosis:—

“Separation of the Lower Epiphysis (of the humerus). The same displacement occurs, and attended with the same signs (as in fracture of the lower articular end of the humerus); the diagnosis from that of dislocation of the fore-arm backwards is also similar.”

This is certainly a brief description of the injury and its diagnosis, but it is all that we can find upon the subject in the work before us. Again, in reference to fractured clavicle, we read—

“Hence fractures of the sternum (*sic*) are divided into those on the sternal and those on the scapular side of the coraco-clavicular ligament, which is attached to the rough oblique line on the under surface of about the outer inch and a-half of the bone.”

No correction of the word sternum is made in the errata, but clearly it should be read clavicle. Correcting this accidental error, and assuming the passage so corrected to give the author's meaning, we may fairly ask, whether a fracture could occur external to the

attachment of a ligament which the author states is attached to the outer inch and a-half of the bone? Were we further to amend this statement by inserting a correct account of the coraco-clavicular ligaments, the enumeration of the seats of fracture of the bone given by the author would still be imperfect, no mention being made of the fracture which occurs between these ligaments, and which presents the greatest difficulties of diagnosis.

In conclusion, we turn to illustrations of the practice of surgery furnished by the author. The use of the saw in amputation is described in these words—

“The saw being worked freely from point to heel, and not fiddled irregularly.”

Most certainly a carpenter would direct his apprentice to work the saw from heel to point. Again, the description of the commencement of the lateral operation for stone runs thus—

“Then, with his left hand thumbing the tuberosity of the ischium and the ramus on the left side, he feels also, with the point of the fore-finger, the sort of depression below the bulb of the urethra, &c., &c.”

We have quoted enough from this work to enable our readers to form an opinion of its merits for themselves. It is well illustrated with woodcuts, nearly all of which are familiar, as they are reprints from well-known standard works. The paper and printing of the book are excellent, but here any commendation of it must stop; not even the extracts from good authorities can be recommended, so freely are they mixed up with the author's errors of every kind.

The Urine and its Derangements, with the Application of Physiological Chemistry to the Diagnosis and Treatment of Constitutional, as well as Local Diseases. By GEORGE HARLEY, M.D., F.R.S.; Fell. Roy. Coll. Phys., Lond., &c.; late Physician to University College Hospital. London: J. and A. Churchill, 8vo, pp. 376. 1872.

It was to be expected that in these days of physiological medicine able scientific workers would in many instances direct their close attention to the study of the urine—a study which perhaps even still affords the widest possible field for the prosecution of both original and confirmative research. In our own country such

workers have not been wanting, and the names of Golding Bird, Day, Fleming, Pavy, Haughton, Parkes, Beale, Harley, and others, bear witness to the labours of the British School of Medicine in the particular branch of study alluded to.

Dr. Harley's work, which has but lately issued from the press, is composed of lectures, eleven in number, which were annually delivered to medical practitioners and advanced students for a considerable period before they appeared in the *Medical Times and Gazette*, chiefly in the year 1864. The last two lectures—those on diabetes mellitus, and albuminuria—were afterwards republished in a separate form.

In answer to the question, "What is Urine?" the author introduces his subject with a definition:—

"Urine is nothing more nor less than a collection of the liquid and solid effete products of the frame, and its composition fluctuates in exact proportion as the processes of life fluctuate."

He then briefly alludes to the varying quantity of water present in the urine of different species of animals—a peculiarity on which depends the *solid* character of the renal secretion in insects, reptiles, and birds, while the urine of animals is fluid. The physical and chemical distinctions of the urine in the sub-divisions of the last-mentioned class of animals are considered—the clear acid secretion of the carnivora being contrasted with the dark-coloured, alkaline, and turbid urine of the herbivora, the uric acid of the former with the hippuric acid of the latter. The physical characters of human urine next receive attention, under the headings, "Colour," "Smell," "Taste," "Reaction," "Specific Gravity," and "Temperature." Perhaps too much space is assigned to the consideration of the methods for estimating the specific gravity of urine, more especially as the lecture is addressed to medical men. We can scarcely believe that any *advanced* student requires such instruction in the common rules of arithmetic as may be necessary for the reduction of the specific gravity from observations with a specific gravity bottle. The lecture closes with an interesting *résumé* of the principal determining factors of the quantity of urine passed. This naturally leads to the consideration of the solids of the urine, their varying amount, and the causes of this variation—matters which are treated of in Lecture II. As an exception to the usual preponderance of organic over inorganic solids in the renal secretion,

Dr. Harley cites the instance of albuminuria, in which the reverse holds good.

The first two lectures may be looked on as introductory, but the third is taken up with the consideration of the chemistry, physiology, and pathology of urea, "the most important constituent of human urine." This arrangement, in accordance with which each constituent is considered in turn from a chemical, physiological, and pathological standpoint, is, we hold, one worthy of all praise. By it the methodical treatment of the different subjects is secured, and it lends a degree of uniformity to the present work which is sadly wanting in many literary productions of to-day. While saying this, we really must take exception to an inconsistency on our author's part—for whereas he has gone with the tide of progress in adopting the metrical system of weights and measures (always, however, giving their equivalent imperial values), he has adhered throughout his work to the old chemical notation. To say the least, this is inconvenient. The rising generation of medical men may be acquainted with both old and new formulæ, but in a few years the new notation must have its way. Perhaps the difficulty might have been met by following the plan adopted in the case of the *British Pharmacopœia*—that of giving both old and new formulæ.

Speaking of nitrate of urea, Dr. Harley mentions the comparative rarity of the crystallization of that salt in specimens of urine not artificially concentrated in the first instance. Now, judging from our own experience, in Ireland spontaneous formation of nitrate of urea crystals is not by any means a rare phenomenon. In about 40 per cent. of a series of 117 experiments performed in nearly equal number during summer and winter, positive results were obtained as to the crystallization of nitrate of urea in urine artificially concentrated. This is a very remarkable and interesting fact, contrasting with the comparative infrequency of like results in England, and with the almost unknown occurrence of them in some continental countries.

A well-marked correlation, which appears to exist between the amount of urea and uric acid present in different urinary specimens, is not directly dwelt upon by Dr. Harley, though he often uses language which expressly points to such a correlation. For example, after speaking of uræmia and ammonæmia, in dealing with the subject of uric acid (Lecture IV.), he says:—

"Urea appears to stand in relation to uric acid as a substance

belonging to a higher grade of metamorphosis; for whatever accelerates oxidation increases the amount of the eliminated urea, and diminishes that of the eliminated uric acid; while whatever interferes with oxidation decreases the urea, and increases the uric acid in the urine."

These remarks are pregnant with meaning, and might with advantage be further developed.

The simplest quantitative analysis we know of is that recommended for estimating uric acid. The acid is set free and precipitated by hydrochloric or nitric acid, and the quantity thrown down from a given amount of urine is washed and weighed—an easy proportion sum completing the process.

Very valuable hints as to therapeutical practice are conveyed in the portion of this lecture which is devoted to the pathology of uric acid. Dr. Harley truly observes:—

"A man needs only to pay a little attention to the teachings of physiology to learn what powerful weapons nature has put into his hands. Like all weapons, however, they may be turned to good or to evil account, according to the knowledge or the inclination of their employer."

These words follow a most interesting inquiry into the question of controlling the quantities of uric acid present in the urine by the exhibition of suitable remedies and by the use of suitable diet.

Lecture V. deals with hippuric acid in health and in disease; and also with chloride of sodium, its uses in the human body, the amount in the urine during disease, and its effects as a remedy.

In Lecture VI. the author passes to the consideration of the colouring matters of the urine, and amongst them especially to that of urohæmatin—the substance which owes its name, as well as its more accurate and modern chemical and physiological investigation, to Dr. Harley himself. According to him the physiological and pathological importance of urohæmatin as an urinary ingredient cannot be over-estimated, and for the reason, that the quantity of this substance present in a given sample of urine is an exact measure of the amount of blood waste going on in the body. All this, assuming that urohæmatin be regarded as the *debris* or the product of the colouring matter of the red blood corpuscles—a view which, we may say for our part, is strongly supported by the clinical history of cases where urohæmatin appears to be in excess, and which receives almost absolute demonstration from Dr. Harley's chemical investigations.

In treating of the vegetable pigments of the urine, the author

takes occasion to show how closely analogous are the animal and vegetable kingdoms—the products of the one being but modifications of the products of the other. Incidental considerations like this and others lend a peculiar charm and novelty to the present work, for without departing too widely from the topics immediately treated of in its pages, they tend to open out the subject under discussion at the time in many new directions.

In the next lecture (VII.) we pass on to the subject of phosphoric acid and phosphates in disease. The quantitative analysis for urinary phosphates recommended is that with a standard solution of *uranic oxide* (modern nomenclature, notwithstanding the adoption of the old notation throughout the work). The excessive elimination of phosphates in certain cases of paralysis, in mollities ossium, and in rickets, calls forth some admirable therapeutical hints as to the treatment of these affections. The broad principle of giving more phosphates in cases where no deposition of them takes place in the urinary passages, but where they are eliminated in excess, is advocated as forming the ground-work of such treatment. In this lecture we also meet with much valuable information respecting the formation of renal and vesical calculi generally. The modes of development of phosphatic calculi are considered under four heads, and the appropriate treatment is given with equally methodical precision.

Oxalate of lime and the sulphates next receive attention (in Lecture VIII.). Oxaluria, or the oxalate of lime diathesis, is painted in very dark colours indeed, and we would not recommend the perusal of this lecture—admirable and true although it undoubtedly is—to a dyspeptic or hypochondriac. In speaking of the detection of oxalate of lime in urine, Dr. Harley has omitted mention of a very beautiful physical proof or sign of the presence of the salt—namely, a wavy appearance assumed by the upper surface of the deposit, closely resembling masses of “wool-pack” cloud.

Lecture IX. is on the clinical significance and pathological importance of the presence in the urine of inosite, creatin, creatinin, cholesterin, cystin, xanthin, leucin, and tyrosin. Dr. Harley mentions a case where crystals of creatin, having formed after some days in a dog's urine, which had been rendered artificially saccharine, so closely resembled prisms of triple phosphate that the differential diagnosis depended only on the very acid character of the urine and the enormous size of the crystals.

We now reach what may be called Dr. Harley's pet subject, one on which he has thrown much light, and which has received ample justice at his hands in the present course of lectures. It is that of diabetes mellitus, with the history of which Lecture X. commences. Under the heading "Chemistry," the tests by (1) specific gravity, (2) potash, (3) copper, and (4) fermentation, are noticed. The author then proceeds to the physiology of glucosuria, and here we meet with much that is interesting and much that is new. It will suffice to indicate the author's researches on the transformation of glucogene into sugar in the liver even after its removal from the body, and on the consumption of saccharine matter in the capillaries of the body, not in those of the lungs.

Under the heading "Pathology," the author divides cases of diabetes mellitus into two classes, according as they arise from (1) *excessive formation of sugar*, or are due to (2) *defective assimilation* of—it may be—a normal quantity of sugar in the circulation (mal-nutrition). This arrangement throws quite a new light on the treatment of the disease, as the cases in the second class would seem to call for a *saccharine* treatment—at all events, they are shown to progress most favourably on a non-restricted diet.

We should not forget to allude to the nervous physiology and pathology of diabetes, which are well handled by Dr. Harley. The co-existence of glucosuria and albuminuria is rightly stated to be of most unhopeful augury.

Albuminuria is the last subject treated of in these lectures, and it brings them to a worthy close. In the opening pages of the lecture in question (XI.) we meet with a table of the normal and abnormal conditions under which albumen is present in urine, the causes of its presence being also pointed out. The consideration of the question is then continued under the headings, "Primary" and "Secondary" albuminuria. In the first class Bright's disease (which designation the author limits—we think quite properly—to acute nephritis) is dealt with, as are also chronic renal hypertrophy; fatty, waxy, cirrhotic, tuberculous, scrofulous, and cancerous degenerations of the kidney. In the second class, where the cause of the albuminuria is not primarily in the kidney, we find imperfect digestion, nerve lesion or reflex irritation, pregnancy; organic disease of the heart, liver, or pancreas; and general affections—febrile and non-febrile—cited as causes and described.

In his remarks on the treatment of the different forms of albuminuria, Dr. Harley is, as usual, guided by the knowledge derived

from physiological studies, held in check by clinical experience, and there is nothing in his recommendations which is without value.

In concluding our notice of these Lectures, we would heartily recommend them to our readers of every standing, as forming a valuable contribution to the literature of a most interesting subject, and as written by one who happily combines the qualifications of a sound physiologist, a good pathologist, and an observant clinical physician. A few typographical errors, scattered here and there throughout the work, will doubtless be corrected in a second edition, to the early appearance of which we look forward with confidence.

Cancerous and other Intra-thoracic Growths, their Natural History and Diagnosis: being the substance of the Lumleian Lectures delivered before the Royal College of Physicians, London. By JAMES RISDEN BENNETT, M.D., Consulting Physician to St. Thomas's Hospital, and Physician to the Victoria Hospital for Diseases of the Chest. With five plates. J. and A. Churchill, New Burlington-street, London. Pp. 190.

THE subject of which these lectures treat is one of deep interest to the practical physician, often testing to their utmost his powers of diagnosis. Dr. Bennett, from his large experience and powers of accurate observation, is thoroughly qualified to place this form of disease prominently before the profession. It must be admitted that the subject is of increasing interest, if it be conceded that "there is reason to believe that cancerous disease in general is steadily on the increase in this country. Mr. Moore has shown, by reference to the Registrar-General's returns, that the increase in deaths from cancer in London, coincident with the increase of wealth and the well-being of the population, amounts to 200 *per annum*."

Dr. Bennett finds that encephaloid cancer is by far the most frequent form of malignant disease within the chest. He has met in his practice with but two cases of the scirrhus and none of the colloid variety. He has, however, seen a specimen of this latter, as also of osteoid cancer affecting the lung in the museum of St. Thomas's Hospital.

For clinical purposes, he conceives, that intra-thoracic malignant disease may best be divided into three classes:—

1. Those in which cancerous deposits are disseminated like

tubercle through the lungs without inducing change in the intervening lung tissue.

2. Where the growth more localized attains greater size and leads to ulterior changes, such as ulceration and gangrene.

3. Mediastinal tumours exercising pressure in various directions and inducing various consequences.

Cases coming under the first of these classes are rare; they present many of the symptoms of general acute tuberculosis, and where there has been no previous history of malignant disease to awaken our suspicions, they offer great difficulties as to diagnosis. An example is given where the symptoms very closely resembled those of acute miliary tuberculosis. In connexion with this case Dr. Bennett points out:—

“How remarkably little tendency there appears to be to pneumonic inflammation as the direct result of cancerous deposits in the lungs. The symptoms, indeed, were those of capillary bronchitis, with more or less pneumonia, the immediate cause of death appearing to have been passive effusion into the pleura.”

This little tendency of cancerous deposit in the lungs themselves to set up inflammation contrasts remarkably with the great frequency with which such action occurs in connexion with malignant mediastinal tumours, the pleura and pulmonary tissue in such cases being usually inflamed.

Dr. Bennett has not met with any example of the co-existence of tubercle and cancer, and if they do co-exist he believes it to be but a coincidence. This agrees with the opinion of Rokitsansky.

Dr. Stokes has stated that recurrent signs of bronchial irritation without sufficient assignable cause are characteristic of disseminated cancer; with this Dr. Bennett agrees, adding that suffocative dyspnœa, disproportionate to the physical evidence of bronchial exudation or obstruction, is characteristic of secondary cancer of the lung following on the removal of external cancer. A further peculiarity distinguishing this dyspnœa from that of ordinary bronchitis is that it frequently increases, whilst the râles, cough, and expectoration diminish or almost disappear.

Whilst speaking of secondary cancer we may mention that our author seems to hold rather to the constitutional than the mechanical theory of the dissemination of cancer. This coincides with our own view.

Dr. Bennett has found pleurisy with copious effusion in no less

than six out of thirty-nine cases of pulmonary cancer, and hence remarks that pleural effusion is not to be considered as contra-diagnostic of cancer.

The well-known causes which determine the variation of the signs and symptoms of thoracic aneurisms, such as size, position, and direction of growth, are equally factors in cases of cancerous and non-cancerous intra-thoracic tumours; the diversity in the latter being even greater, as aneurismal tumours usually obey certain laws regulating the direction of their growth, whilst cancerous tumours do not. Pain appears to be less severe and less constant in connexion with cancerous tumours than with aneurisms. This is probably due to the more rigid pressure of the latter on the nerves and other parts within the chest, malignant growths rather surrounding than pushing them aside. "Pain in parts distant from the thorax is rarely observed, and symptomatic vomiting has been chiefly noticed in cases where the cardiac nerves have been implicated."

Dr. Bennett has not met with any case of absorption of bone due to cancerous tumours, but gives some interesting examples of their protruding through the anterior walls of the chest, simulating aneurism.

In the section devoted to the consideration of non-cancerous intra-thoracic growths, a very interesting and instructive case of Hodgkin's disease (lymph adenoma or lympho-sarcoma) is fully detailed. There is given a table of daily-recorded temperatures, pulse, and respirations, taken through the progress of the case, exhibiting paroxysms of fever presumably corresponding with periods of growth in the enlarged glands. Febrile accesses of this nature were first observed by Dr. Murchison. Appended are three illustrations of the morbid growth, the first representing the heart and tumour *in situ*; the second (coloured) portions of the growth disseminated through the lung; the third the microscopic appearances—the whole making a very excellent clinical account of the malady.

There is next a case of extreme rarity, and which we think Dr. Bennett justly claims as altogether unique—of acute hypertrophy of the thyroid gland, causing death. The patient was a young gentleman, of 19 years of age, enjoying previously good health, but who became subject to attacks of progressively increasing dyspnœa. Tracheotomy was resorted to without benefit, and death ensued. The *post-mortem* appearances were as follows:—

“The thyroid gland was found greatly enlarged (when removed it was almost as big as the two fists), but the enlargement was mainly below the sternum and along the sides of the trachea. Immediately below the orifice made by the surgeon, the trachea became so compressed as to be completely flattened laterally from that point to within half an inch of the bifurcation; it was also twisted to the left, and was surrounded by the greatly enlarged and firm lateral lobes of the thyroid.”

The bronchial glands were not enlarged. The structure of the thyroid was healthy, but very firm. There was no cystic or other apparent disease.

We could wish that Dr. Bennett in these lectures had entered more in detail into the differential diagnosis between intra-thoracic growths and other forms of disease within the chest. He, however, very properly states that we must examine each case on its own merits, and that “by a rigorous application of the method of exclusion we may often come to a tolerably confident diagnosis, even in cases presenting great complexities and difficulties.” We believe that the addition of an index would render his work more complete; but we can with confidence recommend the lectures as containing much valuable information, and eminently deserving of attentive perusal.

DR. MORELL MACKENZIE'S WORKS.

1. *The Use of the Laryngoscope in Diseases of the Throat; with an Appendix on Rhinoscopy.* By MORELL MACKENZIE, M.D., Lond., M.R.C.P.; Physician to the Hospital for Diseases of the Throat, and to the Royal Society of Musicians; and Assistant Physician and Lecturer on Diseases of the Throat at the London Hospital. Third Edition, revised and enlarged. London: Longmans, Green & Co. 1871. 8vo. Pp. 174.
2. *Essay on Growths in the Larynx; with Reports and an Analysis of One Hundred Consecutive Cases treated by the Author, and a Tabular Statement of all Published Cases treated by other Practitioners since the invention of the Laryngoscope.* By MORELL MACKENZIE, M.D., Lond.; with numerous illustrations. London: J. & A. Churchill. 1871. 8vo. Pp. 263.

DR. MORELL MACKENZIE'S work on the use of the laryngoscope has been for some years before the profession, and has reached a third edition; in the first chapter he gives a very interesting account

of the invention of the laryngoscope, in the second, third, and fourth he describes the instrument itself, the mode of using it, and the appearances which it reflects in the healthy larynx, in the fifth, sixth, seventh, and eighth he describes various accessories of laryngoscopy and the instruments in use for the application of remedies to the larynx or for operations upon it, while in the appendix he treats of rhinoscopy, or the art of examining the posterior nares and Eustachian tubes, by placing a mirror at the back of the mouth. The work has already been received with such approval by the profession that we do not think it necessary to do much more than draw attention to the additions which have been made to it since the appearance of the last edition. For some time Dr. Mackenzie has been using the oxyhydrogen light for direct illumination of the laryngeal mirror; while the contrivances previously in use for illuminating the mirror were amply sufficient to enable the operator, provided he knew how to manage his lamp and laryngoscope, to see the larynx satisfactorily, there was a difficulty in demonstrating the appearances to a class, but the arrangement which he has contrived for using the oxyhydrogen light enables him to obtain the most brilliant illumination without interfering with the view of bystanders. For the application of solutions to the larynx, when in a state of acute and chronic inflammation, the author prefers camel's or squirrel's hair pencils, cut square at the end, and firmly attached to aluminium wire bent at an angle of 90 deg.; a solution of perchloride of iron, of the strength of one or two drachms to the ounce, and one of chloride of zinc of twenty to thirty grains to the ounce, are those he has found most generally useful, and as a solvent for these salts he prefers glycerine to water. Laryngeal injectors he does not at all recommend, but in cases in which the patient cannot come with sufficient frequency to his medical attendant for the application of the remedy by the brush, he sanctions the application by Dr. Andrew Clark's hand ball spray producer of weak solutions of carbolic acid (5 grains to the ounce), tannin (5 grains to the ounce), or of perchloride of iron (3 grains to the ounce); from the use of such thrown upon the larynx from the ordinary Bergson's tube we have ourselves seen the best results; nitrate of silver, so long a favourite topical remedy in inflammations of the skin and exposed mucous surfaces, Dr. Mackenzie has not found of such general utility as the drugs we have mentioned. For the inhalation of vapours impregnated with volatile principles

he has devised the "Eclectic Inhaler," of which he gives a sketch, and which he says, while combining the good qualities of various kinds of apparatus previously in use, possesses several entirely new features, requiring no effect in inspiration, insuring the thorough medication of the vapour, and accurately maintaining the temperature desired; for formulæ for inhalations he refers us to the Pharmacopœia of the Hospital for Diseases of the Throat (Churchill), but mentions that the oil of the silver fir (commonly called fir-wood oil), the oil of the scented flag, of myrtle, lemon, and the compound tincture of benzoin are amongst some of the most serviceable medicaments. "In prescribing inhalations containing the essential oils," he says, "light carbonate of magnesia, in the proportion of half a grain to each drop of oil, will be found a suitable medium. The following is the mode of prescribing which I adopt:—*R.* ol. pini sylvestris fl. dr. ii.; magnes. carb. lev. gr. 60; aquæ ad fl. oz. iii. *M.*; 'a teaspoonful to be added to a pint of water at 150 deg. Fahr., and inhaled for five minutes each time of using the mixture.' The addition of twenty grains of camphor is often a useful means of increasing the stimulating effect of any of the essential oil inhalations."

It is Dr Mackenzie's intention to write a series of monographs on diseases of the throat; some time ago he published the first of these in which he treated of the Nervo-Muscular Affections of the Larynx, and in continuation of the series we now have the Essay on Growths in the Larynx; the subject is a comparatively small one, but the author has spared no pains, and has rendered his work as complete and exhaustive as possible. By growths in the larynx he means new formations of benign character forming projections on the mucous membrane; cancerous tumours, syphilitic condylomata and the thickenings which occur in laryngeal phthisis being excluded; in the vast majority of cases they have their origin in a perverted growth of the epithelium or of the connective tissue, the result of long continued hyperæmia of the mucous membrane, owing to catarrh, whooping cough, the inhalation of irritating matters, or the violent exercise of the voice in the open air; the symptoms vary with the precise position of the growth, if on either vocal cord aphonia or hoarseness is produced, if on the epiglottis dysphagia, while if they attain any considerable size, no matter where situated, dyspnœa results; it is, however, by laryngoscopic examination alone that the precise seat

and nature of the growth can be ascertained, and without such examination of course no attempt to remove it can be made with any prospect of success. Dr. Mackenzie himself usually removes them with a forceps, but the various instruments and operative proceedings which may be required are fully described, and the essay is altogether as complete as any monograph could be.

Dr. Mackenzie is a type of the best kind of specialist; indefatigable and eminently successful in the investigation of the special field he has chosen, he tells freely for the benefit of his professional brethren what he has learned, and honestly gives them the fullest directions for the use of the instruments he has invented or improved; and while we believe most of us will consult our own credit and the advantage of our patients by declining operative proceedings upon the larynx requiring the use of the lancet or the forceps, the directions the author has given are quite sufficient to enable any physician, who chooses to take the trouble, to diagnose and treat ordinary laryngeal affections. "In this little work," he remarks, at the end of the first of the books now before us—

"Many instruments and various kinds of apparatus have been described and recommended; but before concluding I would remark, that, with very few and very simple appliances, the most satisfactory results may be accomplished—not only in the diagnosis, but in the treatment of laryngeal disease. I have already observed that many of the most valuable laryngoscopic investigations have been made with a common moderator lamp, and would call attention to the fact, that laryngeal growths have been removed with forceps of the most simple description. My common forceps, which have no complicated mechanism, can be employed in the great majority of cases with success. Those who do not intend to take up the subject from a special point of view, but merely wish to use the laryngoscope in general practice, will do well to provide themselves with a reflector, a couple of laryngeal mirrors, a light concentrator (which can be used with different kinds of lamps) a few laryngeal brushes, and my laryngeal electrode. A very large proportion of laryngeal diseases can be treated with the brush alone, and obstinate cases of functional aphonia cannot resist the internal application of electricity. An additional recommendation to these instruments is, that even when employed injudiciously or ineffectively, they are not likely to do any harm. It is only after the eye and the hand have had much practice in applying remedies to the larynx, that the lancet can be used with safety, or the forceps with effect. In conclusion, 'I feel it a duty to remark,' with Dr. Johnson, 'upon the possibility that the larynx may get too much of local treatment. The laryngoscope has brought this

organ so completely within our reach, that we are all exposed to the temptation of being too meddlesome. If we can avoid the error to which I have here alluded, the introduction of the laryngoscope will be an unmixed good both to ourselves and to our patients, and it will soon be acknowledged to be one of the most valuable additions that have ever been made to our means of diagnosis and treatment.' ”

The Functions and Disorders of the Reproductive Organs in Childhood, Youth, Adult Age, and Advanced Life, considered in their Physiological, Social, and Moral Relations. By WILLIAM ACTON, M.R.C.S.; late Surgeon to the Islington Dispensary, and formerly Externe to the Venereal Hospitals, Paris; Fellow of the Royal Med. and Chir. Society, &c., &c. Fifth Edition. London: J. & A. Churchill. 1871. 8vo. Pp. 262.

THIS, the fifth edition of Mr. Acton's work on the Functions and Disorders of the Reproductive Organs, is, we think, unnecessarily diffuse. Had it indeed been intended for professional readers alone, the author would probably have written more tersely and more simply, and would have made less attempt to fasten his views in their minds by repetition; but the essay is evidently intended also for those outside the profession who are anxious for information on the subject of which it treats, and Mr. Acton seems therefore to have adopted a somewhat lengthy and impressive style of conveying his ideas. Nevertheless, for those who have reason to be uneasy about their reproductive functions, and who are determined to seek advice from a book instead of adopting the wiser course of consulting a trustworthy physician, Mr. Acton's work is certainly the safest and best; and although most experienced practitioners are, we think, more or less familiar with the various derangements of the generative organs which he describes, and know pretty well how to treat them, they will derive many useful hints from these pages. In them he treats of the normal functions and of the disorders of the generative organs in childhood, in youth, in adult age, and in advanced life. Of these periods the third is of course the most important, both in its physiological and pathological aspects, and to it the larger portion of his work is devoted, the various departures from a healthy state in the reproductive functions being detailed and the causes and treatment of such disorders pointed out. The importance of the

topics here discussed can hardly be overrated. In no direction probably does the artificial life of our large cities operate so injuriously on the individual and on the race as in the aberrations of the sexual functions which it creates. Experience has convinced us that not only that vague condition known as general debility, but various disorders of the digestive organs, various nervous affections, and, what is perhaps more important, certain moral and intellectual perversions, may be traced to this source. The drain on the system produced by frequent discharges of seminal fluid, though no doubt hurtful, is not at all so injurious as the perturbation of the nervous centres which occur during sexual excitement. It is the too frequent recurrence of this perturbation that brings on the most serious results, and, as Mr. Acton well points out, and as our own experience long since convinced us, it is not alone in persons who have been guilty of self-abuse that we meet with these ill effects, but in men who give themselves without restraint to intercourse, whether that take place in wedlock or out of it, and in men and women in whom sexual excitement is frequently brought on though never gratified.

“I am becoming every day more and more convinced that much suffering and many ailments arise in great measure from the repeated and long-continued excitement of the sexual feelings unattended by subsequent sexual relations.”

There is no doubt that sometimes, particularly in young boys and girls, the sensations which irritation of the sexual organs produces are not associated in the minds of those who experience them with any sexual feeling. They discover or have been taught that pleasurable sensations may be produced by manipulation of these parts, but the feelings so evoked are not, in the minds of such young persons, associated with the opposite sex. As they grow older the association arises, but it did not exist at first. On this point we have had the most precise information, and it has appeared to us that the more serious neuroses are only produced in those cases in which the sensations are connected with erotic imaginations. Confinement of the bowels, vesical irritability and pain, with acute superficial tenderness in the epigastrium, may arise in the former class, but it is only when the brain is brought into powerful action and made to conjure up images to intensify and give zest to the local sensations that epileptic seizures and impairment of the intelligence are likely to arise.

There is no doubt that Mr. Acton is right in stating that excesses injurious to health are frequently committed in the married state, and although this is a subject on which one rather shrinks from details, there is one point to which we would draw attention, it does not appear to have been noticed by him, but its importance was, some years ago, pointed out to us by Professor Laycock, of Edinburgh; in discussing a case in which we had reason to think marital excesses contributed to the patient's ill health, he specially desired that he should be warned against intercourse in the morning. This gentleman and others who have since been under our care, have acknowledged, when their attention was drawn to the point, that they had satisfied themselves that matutinal coitus was intensely depressing to the nervous system, producing irritability and want of clearness in business during the day; at night the orgasm is followed by sleep, and the perturbation of the brain has time to subside before the organ is called on to perform other functions, whereas in the morning there is no time for this.

Mr. Acton devotes considerable space to the subject of nightly emissions, on account of which young men sometimes give themselves such needless alarm, and for which, unfortunately, they so often put themselves into the hands of quacks and impostors. On this subject his views are in accordance with our own.

"Great alarm is often expressed by patients who suffer in this way; but I believe that such emissions, occurring once in every ten or fourteen days, are in the nature of a safety valve, and are even conducive to health in persons who do not take enough exercise, and live generously. It would, however, be better for the adult to be free even from these; and I feel convinced that in one who has not allowed himself to dwell on sexual thoughts, but takes strong bodily exercise, and lives abstemiously, emissions will either not occur, or their occurrence may be looked for only very occasionally. It is when they take place repeatedly, and leave symptoms of prostration, with other ill consequences, that the patient should seek medical advice."

He thus describes the treatment he follows in such cases:—

"*Preventive Treatment.*—In strong robust young men the surgeon need not take much notice of emissions coming on once a week, but recommend the patient to avoid suppers, to abstain from tea, coffee, and tobacco, and to lie on hair or spring mattresses, instead of feather beds, and with only a moderate quantity of clothing.

"I recommend my patients to drink no fluid after dinner, supposing

that meal to be taken at 6 or 7 o'clock. This, and regular evacuation of the bladder at bedtime, will singularly assist the treatment. A very little fluid will be sufficient to relieve any great thirst that may occur in the evening, but the rule should be, avoid drinking after 8 o'clock.

“The sufferer should be told that emission usually takes place in heavy sleepers, and the best way of preventing this intense drowsiness in the morning is not to load the stomach over night with all sorts of indigestible and miscellaneous food. Care should be taken in regard to quantity and quality, and I should rather say to such persons, make your principal meal in the middle of the day, and let your evening meal be light. I do not advise a man to go hungry to bed, but I am convinced if a patient will judiciously attend to his diet, and in this respect exercise self-control, he may, without much assistance from his medical adviser, ward off emissions. If, however, he will persist in gorging himself with what to him is an indigestible meal, he must not expect that any means a surgeon has at his disposal will avail.

• “Let me further remark, that if a man is disposed to emissions he should not fall into a second sleep, but should rise early, in which there is no difficulty if he goes to bed at a reasonable hour. No doubt can exist that emissions most frequently take place in this second sleep; and although a man awakes thoroughly refreshed from his first sleep, he may arise after having taken a second doze thoroughly prostrated. An early call or an alarum clock, may cure many a patient better than all the preparations in the pharmacopœia. At first these early hours may disagree with him, but they soon become as natural as late ones were, and the patient feels a disinclination to lie in bed, equal to his old disinclination to get up early. Of course large numbers of patients will tell you that they feel so fatigued in the morning that they cannot get up. If more sleep is required—should be the answer—let it be taken in the daytime. It is very probable that in some way or other the very feeling of fatigue complained of depends upon spasmodic action or nervous excitement induced by this second sleep.

“It would be a curious and important question for physiologists to investigate why the second sleep refreshes us so slightly when compared with the first? On awaking the first thing in the morning, most persons, and especially convalescents, feel refreshed by their night's rest; but if they go to sleep again, and rise say at ten, they remain languid all day. Perhaps it may depend in a great measure upon the first sleep being sounder and quieter, and not being disturbed by the dreams to which those who indulge in the second are liable.

“I have often thought of recommending some of my confirmed cases to take a voyage on board ship, and keep the watches with the sailor, which allow of taking only four hours' sleep at a time, in the belief that his interruption of rest would break through the almost inveterate

habit; but it is difficult in these, the worst forms, to induce the patient to take any trouble to cure himself; he wishes to rely on medicine, and will not give himself the trouble to act independently.

“Another very valuable suggestion is to desire the patient to practise the habit of waking early in the morning, turning out of bed, and emptying the bladder. It is in the early morning, when the bladder is full, that emissions and erections takes place. In such cases, if a patient rises at 5 or 6, and goes to bed early, he may altogether avoid emissions.

“I believe this precaution of keeping the bladder empty at night to be more important than almost anything else in the simpler cases, and that it will be usually successful. I have known an enema of half-a-pint of cold water used at bedtime, to work well where other means have not produced satisfactory results. It has been said that sleeping between the blankets will prevent emissions, but I cannot say that I have any experience as to this remedy. Tying a towel round the waist, so as to bring a hard knot opposite the spine, will, by preventing the patient from lying on his back, often prevent emissions at night. It is doubtless quite true that the close observer of his own symptoms finds himself generally lying on his back when the emission takes place, but it is equally certain that emission may occur when the patient lies on his side, as in the following case. One of my most intelligent patients notices that, on suddenly waking on the occurrence of an emission, he finds himself lying on his left side, his legs and knees firmly drawn up against the abdomen, and the erect penis prevented from gaining its natural position by the thighs. Trousseau, in the ‘*Gazette des Hôpitaux*,’ Mai 15, 1856, recommends an instrument to pass up the rectum to press on the vesiculæ, and mechanically prevent the emissions; I have tried the plan on one or two patients, but was obliged to leave it off, as I found that it produced considerable irritation; and even if such clumsy contrivances answered, it would only be by causing the semen to pass back into the bladder, and make its exit when the patient micturated.

“In the more obstinate cases mentioned under the head of Prognosis, page 168, the greatest watchfulness over the thoughts and actions during the day is absolutely essential. I find that there are patients (and very intelligent ones) who have had the greatest difficulty in surmounting the disposition the brain has to summon up and apparently revel in lascivious images. Such persons are not generally strong minded in anything; they express wishes, but have not the courage to employ the means which the medical man tells them they must use to carry out their purpose. And, most unfortunately for such persons, these frequent emissions react on the system, and render them more and more incapable of exerting proper self-control.

“In the present improved way of treating such affections this is the

only class of sufferers who do not readily recover, and I cannot but repeat that if a patient will not and cannot practise self-control, he must not expect that his medical adviser will continue to take any further interest in his case, for let me assure him (as I am obliged to do some of my most rebellious patients) that when the surgeon sees no efforts made towards self-cure, he loses trust, and is apt to prescribe haphazard.

“Too many patients are under the impression that all their ailments may be removed by a dose of physic, and really disrelish the notion that it behoves *them* to do anything except take the draught. For such persons medical skill can do nothing, and they can expect to gain no relief. Cauterization may indeed remove morbid irritability from the urethra, and in cases where the emissions arise from this local cause, there is reason to hope that the reaction on the brain may cease. If the patient will co-operate with the surgeon, much good will result from it, but the operation alone is not sufficient. Constant supervision will be required; and if this is omitted, relapses are sure to follow.

“In the more intractable cases of seminal emissions I should be disposed, at least with people of any strength of mind, to attempt the following plan, which Tissot recommended as far back as 1790. This author says, that since to break the habit is the first object, it is as well to go to the root of it at once, and accordingly recommends the following plan. I have met with one instance in which its manful adoption was attended with perfect success. ‘An Italian gentleman, of very high station and character, consulted me for quite a different affection; but in order to put me in possession of all the facts in reference to his state of health, he related his history. He had been inconvenienced five years before with frequent emissions, which totally unnerved him. He determined resolutely, that the very instant the image of a woman or any libidinous idea presented itself to his imagination, *he would wake*; and to insure his doing so, dwelt in his thoughts on his resolution for a long time before going to sleep. The remedy, applied by a vigorous will, had the most happy results. The idea, the remembrance of its being a *danger*, and the determination to wake, closely united the evening before, was never dissociated even in sleep, and he awoke in time; and this reiterated precaution repeated during some evenings absolutely cured the complaint.’

“This plan is founded on such true physiological grounds, that I feel convinced it must succeed in a great variety of cases. To carry it out, however, requires great firmness and resolution, and it will succeed only with those who have habitually exercised self-control.

“*Curative Treatment.*—When a patient consults me, suffering from the severer forms of the complaint, I almost invariably discover, on

passing a bougie, an excessive degree of sensibility along the canal. This local cause reacts easily during sleep on the brain, which by reflex action brings on spasm, and hence the frequent emission, which is, as stated at page 171, more or less under the influence of the will. In many instances the passage of an instrument once or twice a week will suffice to remove the morbid irritability, particularly if the treatment be accompanied with some slight astringent injection. It is singular to note the success of this treatment in cases that have resisted all other means previously adopted, such as tonics, &c., and when the surgeon has omitted to accompany his tonics with any local examination.

“When, however, this fails, and I admit it occasionally does, I generally have recourse to cauterization, and I find that few cases fail to yield to this treatment, which is attended with little or no pain when performed by a competent surgeon. Cauterization gives the permanent relief that nothing else often will, and I have never yet had cause to regret using it. Those who decry the above methods of treatment cannot, I venture to think, have employed them properly, for both theory and actual practice point them out, in my opinion, as the best means of checking the tendency. As soon as the excessive morbid sensibility of the canal of the urethra has disappeared, the will can assert its force, and then, if the after treatment recommended at page 47 be followed, I am convinced that the health will rally, and it is often surprising to see how the whole physical condition of the patient will improve.

“Successful as I have generally found this treatment, I must admit that even cauterization will not, in every instance, effect a cure. Every now and then I meet with exceptional cases where the irritation is not confined in the urethra; but either from neglect or from some strong hereditary tendency the habit has already, before any medical aid has been sought, had too serious an influence on the brain or spinal chord to be thus overcome. Instances like these are the rare exceptions, and belong rather to the class of mental diseases, for the discussion of which this is not the place.

“In the more severe cases of nocturnal emissions, by prescribing opiate enemata in the proportion of sixty or eighty drops of *Liq. Opii sedativ.* to an ounce and a half of fluid before going to bed, and following the plan recommended at page 172, a cure may generally be effected. In addition to the medical treatment, the patient should be advised to seek cheerful society, but at first to shun association with females. I need hardly add the obvious advice that he should, above all things, break off any acquaintance he may have formed with immodest women. His reading should consist of the light literature of the day, and strict injunctions should be given to abstain from the perusal of any book containing allusion to the subject of his complaint, or any work which

would be likely to produce erotic ideas. I frequently have under my care persons who have brought themselves to the last stage of hypochondriacism by reading those pseudo-medical works so generally advertised in the daily papers.”

Our experience has, of course, been very much less than that of Mr. Acton, but we have never found it necessary even to pass an instrument, much less to cauterize the urethra; our advice has always been—avoid the approach of sexual thoughts, be not an instant in company where they are suggested, occupy the body short of actual fatigue, and occupy the mind in whatever pursuit proves most engrossing, take a sponge bath, and carefully wash the penis and scrotum, avoid all stimulants, go to bed on an empty stomach, and sleep on a hard mattress, with light covering. If the bowels are constipated, as is very generally the case, we give such directions as to food and such medicine as for that special symptom may seem appropriate. Besides this, however, we are in the habit of prescribing either the bromides or valerianate of atropia; the former are, we believe, now very generally used by physicians and surgeons in such cases; we have found the bromide of potassium and the bromide of ammonium equally efficacious; a pretty full dose is necessary. We usually give fifteen grains at eight o'clock in the evening, and thirty at bed time, dissolved in half a tumbler of water; though this dose is large, we have never seen any bad effect produced by it; it is not necessary nor desirable to continue its administration long; the object is to break the habit, and this can often be done in two or three weeks. We were led to try the valerianate of atropia from a knowledge of the good it occasionally effects in epilepsy, in which it was recommended by Brown-Sequard; we do not know whether it has been used by others with the object for which we now propose it, but our experience of it is favourable; we prescribe one grain in one ounce of distilled water, and direct the patient to take fifteen minims three times a day, and to increase the dose by one minim daily until disturbance of vision or dryness of the throat is produced.

Discourses on Practical Physic:—I. On Physical Disease from Mental Strain. II. On Research in Medicine. III. On Intermittent Pulse and Palpitation. By BENJAMIN W. RICHARDSON, M.A., M.D., F.R.S. London: J. & A. Churchill. 1871. 8vo. Pp. 96.

THESE discourses, which have been for some time on our table, are well worth perusal; in the first, the author draws attention to the fact that severe or prolonged mental effort often lays the foundation of physical disease, and mentions the ailments to which, according to his experience, the various classes of mental workers are most subject; and, in the second, he announces his conviction that the advancement of medicine as a science is hindered and not helped by men devoting themselves to special limited fields of investigation and practice. Both of these discourses may be read with profit, but it is to the third essay that we wish now particularly to direct attention.

Intermittent pulse is a symptom of great interest and of great practical importance, and Dr. Richardson's study of it has been carried on in a way which may serve as a model for such an investigation. "In relation to time," he says, "there are in disease three distinct variations in the beat of the pulse—

(1) "There is a beat which may be called an *acute irregularity*, in which each stroke is given in correct order of succession the one stroke to the other, but in series of five, ten, or other number of beats differing in rate from other series. In cases of very feeble heart we often meet this condition, we meet it in anæmia, we meet it after loss of blood and other serious states of depression.

(2) "There is a beat which may be called a *prolonged irregularity*, in which the pulse shall during one minute register say seventy, and if counted through a succeeding minute, ninety or a hundred beats. This form of irregularity, in relation to time, is met with most distinctively in cases of acute cerebral disease, especially in the hydrocephalus of children. In hydrocephalus, according to my experience, it is a fatal sign; I have never known an instance of recovery, when, with other acute symptoms pointing to the brain as the seat of the acute disease, this prolonged irregularity has been markedly present.

(3) "Lastly, there is the kind of irregularity which is to be studied in the present essay—the irregularity known to us all, and known to many of the intelligent public, by the term *intermittency*, and connected often by the patient with the further definition *palpitation*. This irregularity consists of an absolute loss of certain of the normal beats of the pulse; it is as though the pulse were clipped out for the moment, the

intermittency of stroke occurring during the whole interval of a normal stroke, or in extreme cases covering the time of two, three, or even a greater number of natural pulsations.”

According to Dr. Richardson, the intermission takes place owing to the ventricles failing to contract, the standing still in the heart's action occurs just when the ventricles have received their charges of blood, and should close upon them.

“The ventricles, filled by the systole of the auricles, fail to contract on the blood contained in them; thus the system altogether is left with the arterial side of the heart full, with the arteries contracted on a small column of blood, with the veins full, and with the right side of the heart full both in auricle and ventricle. In a word, the whole circulating system is left containing blood, so that the line of the blood current continues unbroken. During the interval of the cessation of the action of the ventricles, blood is, moreover, still entering the right auricle from the two cavæ, by that continuous force which the older writers called the *vis a fronte*, and the auricle remains in motion, contracting on its contained blood. A column of blood is in this way still carried into the pulmonary artery, and, the artery contracting, a feeble second sound is produced, after the loss of the systolic sound, by the closure of the pulmonary semilunar valves. Lastly, when the ventricles again contract, contracting as they do at this time on a double charge of blood, there is produced the long heavy systolic sound, followed by the two sharp faint second sounds, the reduplication of the second sound being due either to a separate closure of the pulmonary and aortic sets of valves, or to a simultaneous double but feeble closure of both.”

What, he then asks, is the elementary, the organic cause of this cessation in the cardiac action?

“We should naturally begin by looking into the structure of the heart for a cause. We should be wrong. The fact alone that during the intervening periods of intermittency the heart is natural in its action, would go far to indicate that in it there need be no serious organic lesion. Still, this of itself would be little were it not supported by more direct evidence. Being greatly interested in this matter, I seized once the opportunity of examining after death the heart of an aged man, who for many years presented the phenomenon of intermittency more determinately than I ever before had seen; his pulse, never, as far as I could learn, failed to intermit less often than once in eight beats. His death was from senile decay, but his circulation may be said to have outlived all the other of his systemic powers. When quite insensible, the pulse, with long hesitations, came up again, and the pulse was

beating at the end, even when the respiration had ceased. After death, instead of a diseased heart, the heart was found the healthiest of the organs of the body. There was no trace of the valvular disease. There was no departure from the natural size and condition of the cavities or the thicknesses of the walls; the coronary arteries were normal, and the muscular structure, quite free from fatty and granular degeneracy, was merely, as the tissues are in the aged, a shade paler than is common in the young and robust. Since the occurrence of that case, I have confirmed the experience then gained by three other experiences.

“I feel bound, therefore, to say, from what I have seen, as positive truth, that the most marked intermittency of the heart may be present without evidence of any known form of organic disease of the organ itself; and, as one fact carefully assured is as good as a thousand, I am driven to accept that there is no known morbid condition of the heart itself, structurally considered, that produces the phenomenon of intermittent action. Intermittency may co-exist with other signs of cardiac derangement essentially of structural origin; a fatty heart may intermit; a heart with faulty valvular mechanism may intermit; and intermittency with structural change may form, and often does form, a most serious complication. These facts we must at once allow, but we must allow them feeling that the intermittent action, having no necessary connexion with the structural disorder, is evoked by a cause remote and independent. Pre-existent diseases of a special kind, such as acute rheumatism, do not, so far as I can learn, leave intermittency specially in their train; neither, as far as I know, is the phenomenon more common in those who have structural disease of the heart than in those who have not.”

Pursuing his investigation further, the author has arrived at the conclusion that neither in the digestive organs nor in the blood is the cause of intermittent pulse to be found; it is essentially a symptom due to lesion of the nervous system. “I have never,” he asserts, “met with a case in which it has not been traceable to some form of mental excitement with succeeding depression,” a statement the truth of which he supports by a reference to numerous cases. Seeking more closely the seat of the phenomenon, he inquires in what part of the nervous system has the change occurred, and adopting the view that the great ganglionic system is, possibly, the seat of the emotions and passions, while the cerebro-spinal is the system of the pure intellectual life, he fixes upon the former as the probable seat of the phenomenon under consideration. In a paper already published Dr. Richardson had adopted the view of its cerebral origin, and he therefore now states fully the reasons which have led him to modify that opinion.

“(1) A larger experience of the disorder has failed altogether to lead me to connect the phenomenon of intermittent action with any other symptom of cerebral lesion: such as paralysis of motion or sensation, convulsion, chorea, cranial pain, or any special symptom pointing to cerebral complication. I look over the records of the last fifty cases I have seen, and I find not a symptom of certain cerebral or spinal lesion. It seems to me almost impossible to assume that if the cause of the interruption of the heart were cerebral or spinal—if, for instance, there were disease implicating the pneumogastric at its origin—there could be persistency of the one symptom, and no sign of any other symptom of a cerebral nature.

“(2) If the symptom were due to irritation of the pneumogastric in some part of its wandering course away from its origin, there would be afforded some very distinct evidence of the fact. There would be symptoms of pain or of nausea, or of disturbance of the stomach, whenever there was disturbance of the heart. But on referring to actual facts, I find no indication whatever of any such necessary connexion of symptoms. I infer, therefore, that in cases of intermittent pulse the pneumogastric is, as a rule, quiescent.

“(3) The symptom of intermittent pulse does not appear to me to be dependent upon irritation and exaltation of function of nerve. In all I have seen of it it has been connected with failure of nervous power, and with failure of the heart, not because the heart is arrested by any overruling force, but because it is not supported by a proper and efficient force.

“(4) The evidence derivable from experiment with narcotics seems to me conclusive against the cerebral origin of the symptom, for it is not in the stage of general muscular excitement, when the pneumogastric clearly is under excitation, that the symptom is demonstrated, but at the stage when the cerebrum is practically dead, when the muscles which are under cerebral and spinal influence are dead, and when nothing lives except the cardiac ganglia, and their reserve, the sympathetic cardiac ganglia.

“(5) Further, the same experiment differentiates between the action of the sympathetic cardiac ganglia, and the true cardiac ganglia; for when the sympathetic fails in function, and intermittent action is developed, the cardiac centres still sustain a feeble action, even when all other nervous communication is cut off. Hence the failure does not lie in the true cardiac centres.

“(6) The last reason for a modification of view respecting the seat of nervous lesion in cases of intermittency of the pulse, is the strength of the proposition that the centres of the great ganglionic system are either the distinct centres of the emotional faculties, or that there is a direct connexion between the sensorial organs and the sympathetic, so that

emotions received through the senses are at once transmitted to the organic centres. It was demonstrated many years ago by the distinguished physiologist, Dr. Wilson Philip, that the ganglionic system can be excited to action through the sensorial organs without exciting the muscles called voluntary; and that when an impression which excites us involuntarily is received by the senses, it must pass through the involuntary nervous system to the involuntary muscles. Thus, change in the centres of the involuntary nervous chain may be excited by what is called mental impression, and central function may be destroyed as easily by such an impression as by a physical injury."

As Dr. Richardson points out, intermittent pulse is a phenomenon which should not be neglected; those who exhibit it have been seriously, perhaps permanently, injured, and every effort must be made to conserve and to repair the damaged system. His chapter on treatment specially merits careful perusal. In it the various points of practice which require attention are minutely explained. Excitement and fatigue must be avoided; abundant sleep must be sought; food must be taken in moderate quantities and *frequently*; alcoholic stimulants, which unquestionably afford temporary relief, must be used sparingly, and only when required to meet some special aggravation of suffering. Quinine, iron, and strychnine are often needed, and in extreme cases excitement must be subdued and rest induced by opium; while exceptional conditions must be met by various other expedients.

On Mankind; their Origin and Destiny. By an M.A. of Baliol College, Oxford. London: Longmans. 1872. Pp. 780.

THE title of this book conveys an exceedingly false idea of its contents, as only a few sentences, near the end of the book, refer to either one or other of the two important subjects which the name indicates, and all the references thereto are of the most shadowy description. The main subject of the book is the origin and development of the various systems of religious belief, and an attempted demonstration that all systems of worship are corruptions of the simple, primary, and universal worship of Nature; that the sacred books of all religions are of the same stamp—intelligible only to the initiated, and but unmeaning apologies to the rest of the world.

The author has done wisely in withholding his name; but he is

evidently a credulous disciple of the most advanced of the German rationalists ; and, while he exhibits great erudition and a considerable acquaintance with an extended range of subjects, yet his method is none of the plainest, and his quotations are simply of an *ex parte* character, so though he has certainly produced an extraordinary book, yet we do not think he will win many disciples to his doctrines.

A journal like this is not the place to enter into an extensive or critical review of works like that now under our notice, for although the origin of man has now become a question of natural history, yet we must confine ourselves to the biological, not to the theological aspect of the question. And there is literally no food for criticism in this respect in the work before us, as the biological aspect is thoroughly ignored.

The most important part of the work is devoted to a minute verbal criticism of the first few chapters of Genesis, and the Gospel narratives ; and we have in these an indiscriminate and dogmatic dishing up of the carpings of the German neologians (unacknowledged mainly), and to those familiar with the writings of Hitzig, Ewald, Strauss, &c., &c., the criticisms will be very familiar. He believes, however, that the first two chapters of Genesis have a secret meaning which he has for the first time in modern ages discovered, and he enters largely into the interpretation thereof. Many of his verbal criticisms will be probably considered as very doubtful, such as his arguing from Elohim—that Moses believed in a plurality of gods who were demiurgi, employed by the Adoni in the work of creation. He also translates "*Tohu va Bohu*" as "a pyramid and an egg," &c., &c.

A considerable part of the latter chapters of the book is occupied with the unfolding of the astronomical element in religion, and this part has some interest. Undoubtedly much of the symbolism of religion is drawn from the externals of nature, but our author is not on solid ground when he tries to argue that, because this is so, therefore all the religion of which these symbols are the expression is essentially a corrupted form of sun and star worship. Our expressions and words must of necessity be anthropomorphic and materialistic, even when our conceptions are the farthest from simple anthropomorphism and materialism.

As the author ignores the element of miracle altogether as an agency in history, his method of dealing with the Scriptural narratives has certainly the advantage of simplicity. Of each miracle

he simply says, "this is unhistorical"—a very easy way of disposing of a difficulty; and when anxious to get rid of any difficult passage in the Hebrew Scriptures, he says, with an equally oracular decision, "this is an interpolation of much later date." It would certainly be satisfactory if he would in such cases afford some reason for his dogmatism. Like Büchner, he seems to have a special spite against Paul as the founder of gentile Christianity, probably because his writings (three epistles at least) are so absolutely beyond the pale of historical doubt that their genuineness is admitted without question by the Tübingen school. On analysis the book resolves itself into three elements—one, an element of truth scattered here and there; secondly, an element of strained analogy; and, thirdly, an element of fable and hypothesis which is very largely developed.

To give a detailed examination of this book, chapter by chapter, would require far more space than we have available, and in point of method the arrangement is so bad that it becomes a labour to follow the involutions of his argument; hence the work, though displaying much more research, is vastly inferior in argumentative power to others of the same rationalistic school on the subject, such as that of S. B. Gould "On the Origin and Development of Religious Belief."

A. M.

Elements of Chemistry; Theoretical and Practical. By WILLIAM ALLEN MILLER, M.D., D.C.L., LL.D.; late Professor of Chemistry of University, King's College, London. Revised by HERBERT M'LEOD, F.C.S. Part I., Chemical Physics. Fifth Edition, with additions. London: Longmans, Green, Reader, and Dyer. 1872. Large 8vo. Pp. 668.

MILLER'S *Elements of Chemistry* has now become the standard work on that science amongst the larger scientific treatises. It occupies the position so long filled by the celebrated text book of Liebig's, translated and edited by Turner and other English authors. The present edition of the first volume is revised by Mr. Herbert M'Leod, a very competent editor, and one whom it is likely would have been approved of, were the distinguished author still living. It would indeed be difficult to find fault with the work, even if we were in a most hypercritical mood. We have carefully looked through its pages and find it to be remarkably free from those

typographical errors—especially of formulæ—which usually occur so numerous in scientific text-books. The work, indeed, has been most carefully “revised.” As compared with the fourth edition there is an increase of twenty-five pages; which, together with some condensation in the mere descriptive matter in portions of the work, have enabled the editor to introduce a large amount of novel and important information, embracing the most recent contributions to chemical physics. The most valuable additions to the work are in relation to spectrum analysis and the doctrines of atomicity. Very interesting information is given respecting what may be termed solar chemistry. Although this volume cannot be regarded as, by any means, a complete work on experimental physics, yet it contains an account of that department of science amply sufficient for the wants of the students of chemistry and medicine. We cordially recommend this volume to the notice of all who require an accurate, copious, and recent work on chemical physics.

The Diagnosis and Treatment of Aortic Aneurism. By DR. GEORGE W. BALFOUR. (Transactions St. Andrews Graduates' Association) London: J. and A. Churchill, 1871.

WE do not know what were the special reasons which induced the medical graduates of the University of St. Andrews to form themselves into an association; the objects, however, which they set before themselves were eminently worthy “the advancement of the science and art of medicine and of general science and literature, the maintenance of the interests of the medical graduates of the University, and the cultivation of social intercourse and good fellowship.” We hope all these objects have been attained, and it is certain that in their Transactions (of which the present is the fourth volume) several valuable communications have appeared; some of these have been noticed by us in reviews, and in the stated reports published in the Journal; but in the number now before us is one of such exceptional importance that we wish to direct special attention to it; it is an essay by Dr. George W. Balfour, of Edinburgh, on the diagnosis and treatment of aortic aneurism. We will not at present allude to the author's observations on diagnosis, valuable though they are as coming from one who is thoroughly familiar with

the statements of previous observers, and has had in his own practice ample opportunities of verifying or refuting them—it is on the treatment of aneurism by the administration of iodide of potassium that Dr. Balfour has a right to be considered an authority. Having first briefly referred to the various processes by which occasionally a spontaneous cure of internal aneurism takes place, he describes the five other methods by which, in modern times, physicians have attempted to bring about the same result, namely, the introduction of fine iron wire into the tumour, galvano-puncture, the hypodermic injection of ergotine, Valsalva's method, and, in abdominal aneurisms, pressure, and then gives us an account of the circumstances which led himself and other observers, independently of one another, to try the iodide of potassium, which, he says, “relieves the pain and all the other symptoms of aneurism more rapidly and more effectually than any other.” He records a number of cases which confirm this statement, and leave no doubt on our mind that the administration of this salt, with attention to other details of treatment, is capable of giving relief, and in some cases effecting a cure. Having ourselves, however, seen on the one hand how much suffering can be lessened and life prolonged by proper attention to diet and rest, and by the occasional application of two or three leeches to the surface of the chest near an aneurism, and on the other how utterly useless is the iodide of potassium in a patient who will not submit to have his diet and stimulants restricted, we transfer to our pages Dr. Balfour's instructions, convinced that those who wish to put this treatment to the test should carefully follow them. In the cases related the dose of the iodide varied from five to thirty grains three or four times a day. In some of the cases unpleasant symptoms were at first produced, and the drug had to be discontinued for a time. Ultimately Dr. Balfour came to the conclusion that no advantage resulted from beginning with small doses, but that as it was desirable to saturate the system as rapidly as possible, it was, all things considered, better to begin with full doses, as of thirty grains, intermitting them occasionally for a day or two on the occurrence of any unpleasant symptom. He has found that thirty grains given once in the day will produce iodism, when the same dose, given three times, has no such effect; and he always now gives thirty grains three times a day, with a full opiate, or dose of chloral at bedtime, with the certainty of at once inducing tolerance; the iodide, he believes, counteracts both opium and chloral, which require to

be given very freely; and finally he considers that it is only by keeping the patient persistently saturated with the drug for many months that permanent amendment is to be obtained.

“In regard to the adjuvant treatment, there are one or two remarks which seem to me of considerable importance, and these may be comprised under the two heads of position and diet. Whatever is capable of lessening the frequency of the heart's action, without impairing the strength of the patient, or vitiating the quality of his blood, cannot but be an unimportant adjuvant in the treatment of aneurism. The enforcement of the recumbent position, therefore, which is so influential in this respect, has seemed to me a matter of paramount necessity, and has been strictly carried out in almost all of my cases; indeed, in the most serious one (Case XXIII.), the patient was laid upon his back for fully ten of the eleven months he was in my ward, not being permitted even to turn upon his side—any attempt to do so being always attended by a recurrence of his disagreeable symptoms. I have no doubt that the success attained in his case, as well as in others, was very considerably due to the long-continued perfect rest in the recumbent position; and in the treatment of so serious a disease as internal aneurism, I should consider it most unwise to neglect the employment of this simple but efficient mode of aiding the cure. No doubt the enforcement of this portion of the treatment is irksome and impossible of attainment without the intelligent acquiescence of the patient, but I have not had any difficulty in obtaining this, on explaining my reasons and the object I had in view; and I may make the same remark as to diet. Aware of the evils of starvation on the one hand, and of plethora on the other, my patients were at first put upon a somewhat restricted mixed diet—fish being given for dinner, at first at all events, as being the least nutritious form of animal food, while they were told voluntarily to restrain their appetite as much as possible, and to make use of no more than what they felt to be sufficient to maintain themselves. In regard to fluids, water, tea, or milk alone were allowed; and though they were not doled out in a measured quantity, yet similar directions were given in regard to them as in regard to solid food; explanations were given in regard to the result desired, and the evils to be avoided, and careful inquiries were daily made as to the mode in which these advices were being complied with, so as to impress their necessity and importance upon the patients. I have had no reason to be dissatisfied with the result of this reciprocal confidence between patient and physician, and I believe it to be more conducive to the well-being and the comfort of the former, than any more precise definition of amounts by weights and measures.”

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE
COLLEGE OF PHYSICIANS.

Wednesday, May 15th, 1872.

HENRY EAMES, M.D., Honorary Secretary.

DR. DARBY in the Chair.

A Case Illustrating the general Physiological Antagonism between Atropia and Morphia. By J. MAGEE FINNY, M.B., Dub.; Fellow and Registrar King and Queen's College of Physicians, Ireland; Demonstrator of Anatomy, Trinity College.

Miss C., aged twenty-five, a lady of nervous temperament, and who had on several occasions suffered from various forms of neuralgia—at one time in her face, in the branches of the trigeminal nerve, at another in the back and stomach—consulted me on October 20th, 1871, for severe neuralgia in the left side of her face and head, produced by a dental operation to which she had recently submitted.

Having, on previous occasions, noticed the hypodermic employment of morphia and atropia combined, to be followed, in this lady, by the happiest results, not only as a direct and almost immediate sedative and anodyne, but as a very important curative agent, so that, under its use, the appetite improved, nervous irritability was allayed, the various functions of the body were normally performed, and complete and permanent relief from the pains ensued, I determined to use this mode of treatment again for the present existing suffering from which she sought relief.

I may here observe that my experience (small though it be) coincides with the teaching I had the advantage of acquiring while a pupil of Dr. Stokes—namely, that to obtain the best results from the use of hypnotics,

whether their anodyne effects be desired or not, it is advisable to administer the drugs at the usual hour of sleep, so as to anticipate, as it were, the normal process of habit; and that where, in addition to hypnosis, relief from pain be the object, this end is most likely to be attained by attending to the same rule.

In accordance with this principle, the following of which I have had no reason to regret, but quite the contrary on many occasions, I paid my patient a visit at 10 o'clock in the evening of the 20th, purposing to inject under the skin of the arm the dose I had, from former experience, found to be sufficient to fulfil both these requirements in Miss C.,—viz.: $\frac{1}{4}$ grain of acet. morphia, along with $\frac{1}{50}$ grain of sulph. atropia.

The addition of the atropia, I may mention, I have always noticed to have a two-fold effect—(1) It diminishes the tendency to nausea, so constantly following the administration of morphia alone; and (2) it produces anodyne effects not to be obtained by morphia.

As, however, my atropia solution had been in my possession for over three months, and as I noticed several fungoid bodies floating through it, I conceived it had lost much of its strength, and that I ought therefore, so as to obtain its full effects, to give of it a larger quantity than usual. Acting on this conception—a proceeding which the circumstances that followed made me greatly regret—I administered subcutaneously double the usual quantity of the atropia solution, along with $\frac{1}{4}$ grain of morphia. Leaving my patient for, as I expected, a good night's rest, I remained in conversation with another member of the family down-stairs for about twenty minutes, and I was just taking my leave when Miss C.'s maid hastily summoned me to her bedside, saying Miss C. was in a very strange state, and was very much frightened.

The condition I found her in was quite new to me, as never before had I seen any patient so affected after the employment of morphia. The symptoms were as follows:—Complaining of great cold, so that she was shivering and trembling all over (to which perhaps alarm may have tended), and her teeth chattering, her feet and hands were cold, although a hot jar was to her feet, and additional blankets covered her. The tongue was dry, parched, and rough, and this condition evidently extended to the pharynx, as she complained of dryness of the throat, and constantly asked for drinks, although, when they were given, she was hardly able to swallow them. Her speech was thick and inarticulate; she complained of dimness of vision, saying she could not see me, and that flashes of bright light passed before her eyes. The pupils were much dilated and unaffected by approximating the light of the candle towards them. The pulse very small, up to 130. Respiration 32, and very shallow. On being questioned why she could not draw a deep breath, she replied that she was caught on attempting to do so.

The case was evidently one of atropism, produced by an over-dose of the alkaloid, as it now was evident that my solution, in spite of the floating bodies, was as strong as before, and that instead of $\frac{1}{50}$ grain I had injected $\frac{1}{25}$ grain at the least. Hoping the ill effects would not become worse, but would shortly pass away, I remained beside her to watch the result—but instead of becoming better, instead of the symptoms diminishing and sleep ensuing, I soon saw the case change, from one of simple interest, into one of no small anxiety to me.

In about ten minutes, in addition to the above enumerated symptoms, she evidenced great uneasiness, tossed about, flexing and extending her arms and legs; she now became delirious, talking on various subjects, being quite unaware of my presence, and imagined several persons to be in the room, giving directions to them on various domestic matters. She grasped at imaginary objects in the air; and from, no doubt, the parched state of her throat, frequently attempted to pass her finger to the back of the throat, and nearly succeeded, on one or two occasions, in producing vomiting. She also seemed inclined to get out of bed, but was easily restrained. The pulse still kept high, and though the extremities were not quite so cold, I thought things were quite bad enough, and determined, without further delay, to send for additional aid and advice. Before doing so, however, the thought occurred to me to try the effect of a dose of morphia as a general physiological antidote—as the recollection of cases of belladonna poisoning having been successfully treated, on this principle, by the President of the Royal College of Surgeons, during the time when I was a student in the Meath Hospital, flashed across my memory. (These cases I find on reference are fully detailed in the *Medical Press* for 1862.)

Accordingly I injected—not indeed without considerable difficulty, owing to the delirious restlessness and tendency to pugnacity on the part of the patient— $\frac{1}{3}$ grain of the acet. morphia.

The suspense which I had been in from the commencement of this alarming condition, and which now further augmented, seemed to make minutes hours, was shortly relieved, as in less than five minutes, to my great delight, I observed the restlessness and jactitation cease, the skin to become warm, and the respiration fall to 20, while the pulse came down below 100, and was fuller. In a few minutes afterwards—ten altogether from the second injection—I was satisfied my patient was sound asleep, and in a fair way to spend a quiet night. After remaining in the house about half an hour longer, I took my leave, and in the morning I learned she had slept well, had taken a hearty breakfast, and that the neuralgia had entirely disappeared. After shopping for about an hour she visited me in my study in the afternoon; and with the exception of slight inconvenience arising from the still dilated condition of the pupils, she expressed herself as

being as well as ever, and was very anxious to know why the hypodermic injection “went astray,” as she called it, for, though conscious that she had summoned me to her bedside, and that she had felt very “queer,” she knew nothing else of what had occurred,—nothing of the anxiety with which she was watched. Information on this point, I need hardly observe, she did not obtain from me.

The points of interest which this case furnishes to the scientific and the practical man alike are neither few nor insignificant. It was plainly one of a toxical dose of atropia. Whether the quantity injected would have, if left to itself, ended in the same happy way, or otherwise, I am unable to state, and I am very glad I did not wait to put it to the practical test of time; but the points of resemblance between the symptoms just detailed and those given in standard works on *materia medica*, as attendant on a poisonous dose of belladonna or its alkaloid, were too striking to buoy me up with any such hope as that; had I had patience and not interfered, the case would have shortly run its course to recovery. But supposing such would have been the result—supposing that my fears had elevated an over-dose into a poisonous dose, the importance of this case, as illustrative of the antagonistic properties of belladonna and opium, would be none the less.

Dr. John Harley, who has studied the physiological actions of this alkaloid, as well as others, in an exhaustive and most able treatise, states that the fullest medicinal dose of the sulph. atropia hypodermically employed is $\frac{1}{48}$ th grain, after which the following symptoms may be expected to present themselves in a healthy, robust, adult male^a :—

“After 10–15 minutes an acceleration of the pulse, 20–70 beats with decided increase in the force of the cardiac contractions, and of the arterial tone; a general suffusion of warmth, a slight throbbing or heaving sensation in the carotids, and a feeling of pressure under the parietal bones; giddiness, drowsiness, or actual sleep, with a great tendency to dreamy delirium, and in women slight occasional startings; complete dryness of the tongue, roof of the mouth, and soft palate, extending more or less down the pharynx and larynx, rendering the voice husky, and often inducing dry cough and difficulty of deglutition. No difference will be observed,” he says, “in the rate of respiration, except (as may happen in a nervous woman) a little emotional excitement on the sudden accession of giddiness. After continuing about two hours, the dryness of the mouth is suddenly relieved by the appearance of a viscid acid secretion of an offensive odour, like the sweat of the feet; as moisture returns to the mouth the pulse is observed to fall, and it now rapidly resumes its ordinary rate.” That is, the pulse remains high for over two hours at the least.

^a The Old Vegetable Neurotics, by John Harley, M.D., Lond., 1869, p. 203.

“A larger dose, $\frac{1}{32}$ gr., produces, in addition to the above, sleep, or instead of sleep a little meddlesome delirium, and the patient will require attention to prevent him getting out of bed. He will have pleasing illusions and delusions, meddling with everything in his way, picking at and handling imaginary objects in the air, and accompanying his acts by muttering and smiling, or with loud chattering, interrupted by subdued laughter.”

$\frac{1}{20}$ grain is the largest dose injected by Dr. Harley into man, in which case he observed the vascular excitement to be less apparent than after an ordinary full dose of $\frac{1}{48}$ grain.

It must, however, be borne in mind that while both children and pregnant women are remarkably insusceptible of the action of belladonna (a fact noticed by Dr. Fuller and Dr. Harley alike), and while the doses of $\frac{1}{20}$ gr. produced the effects detailed in strong adult men, on the other hand, it is equally the truth that the weak and those of excitable temperament are very readily and powerfully influenced by the alkaloid. “The $\frac{1}{96}$ gr. of the atropia salt (writes Dr. Harley) will produce as great an effect upon a delicate nervous woman as $\frac{1}{60}$ gr. upon a man of average strength.”^a

In the case of my patient, who may, I think, be fairly classed among “those of excitable temperament,” inasmuch as she was very powerfully influenced by $\frac{1}{25}$ gr., there are some points which differ much from those mentioned by Dr. Harley. I refer, in particular, to, first, the acceleration of the respiration, amounting to 32–36 in the minute, and that, not merely at the moment when the giddiness came on, but during the whole time I stood by watching the case—fully half an hour; and in the second instance, to the chilliness complained of, evidenced by the chattering of the teeth, and the coldness of the extremities. Whether the simultaneous exhibition of the morphia may have in any way tended to produce these symptoms, or whether they were due to the fear awakened in Miss C.’s mind by the appearance of the unusual sensations of flashes of light, dryness of the mouth, &c., I cannot say, although I am disposed to think both these circumstances combined may have aided largely in causing them. It is, however, more than probable that the respiratory symptoms were produced directly by the action of atropia, as I find that other authorities do not agree with Dr. Harley on this point. For on referring to Dr. Thomas Fraser’s work, just published, on the antagonism between the actions of Physostigma and Atropia (for the opportunity of seeing which I am indebted to my friend Dr. A. Smith), I see that Von Bezold and Bloebaum, in 1867, have demonstrated that in certain doses atropia does accelerate the respiratory movements by paralysing the terminations of the vagi nerves in the lungs, and by stimulating the respiratory nerve centres (*Ibid.*, p. 533).

^a *Ibid.*, p. 209.

On looking through the recorded cases of poisoning by belladonna, or its active principle, in which the treatment was based upon the physiological antagonism of opium or morphia, I find two cases detailed by Mr. Benjamin Bell in the *Edinburgh Medical Journal* of 1857, which so closely resemble in most particulars that just detailed, that I would venture, even at the risk of being chargeable with tediousness, to shortly refer to them. I do so the more readily, as they seem to be the only cases on record in which the atropia had been administered hypodermically as a curative agent, and where, on the occurrence of symptoms of poisoning, the morphia was similarly administered as an antidote, and was the only treatment employed.

The first case given by Dr. Bell was that of an aggravated case of sciatica, in which, after having failed to give by morphia more than temporary relief, he determined to employ atropia. He accordingly injected behind the great trochanter $\frac{1}{4}$ gr. of sulphate of atropia. This large dose he was led to use from having safely employed $\frac{1}{12}$ gr. in a former instance under the skin of the forehead for severe facial neuralgia, and he thought he might, at such a distance from the sensorium as the thigh, with equal immunity and benefit employ a larger dose. Almost immediately the pain was relieved, but in a short time symptoms very similar to those detailed above as having occurred in my own case, ensued. When Dr. Bell saw his patient four and a-half hours after, he was very restless, excited, and unable to speak; the breathing hurried, the pulse small and rapid, the skin bathed in perspiration. His condition was altogether alarming, and there were no indications of any tendency to improvement. "Under these circumstances," writes Dr. Bell, "being acquainted with no more promising plan of treatment, I had recourse, with some confidence, to the subcutaneous injection of morphia. I injected without delay 25 minims of the double strength solution of morphia into the gluteal region of the opposite limb, which happened to be next the edge of the bed. This was about 5 p.m. Almost immediately a decided change for the better was perceptible. He became considerably calmer, and swallowed a little water without much difficulty. I visited him again at 7.30, and was glad to find he had been sleeping quietly in that posture for an hour and a-half. The remarkable flushing and congestion of the head and face had entirely disappeared. The pulse was fuller and less frequent, the skin soft and comfortable. On the following day before noon I found him entirely relieved from pain and in good spirits, as he had been out of bed, walking about the wards, and quite unconscious, or at least oblivious of all that had happened during the period of so much anxiety to those around him."

The second case was one of facial neuralgia in a female where $\frac{1}{12}$ grain

of sulph. atropia was employed, and soon the pulse became frequent and small; there was considerable amount of subsultus and jerking of the hands, restlessness, moaning, and complaining of an unpleasant feeling of deadness or want of power in the lower extremities, and dryness of throat. This condition had lasted for two hours and a half when Dr. Bell injected a solution of morphia. The patient almost immediately felt relief, especially from the fulness in her head, and the feeling of deadness in the extremities.

The points of resemblance are so obvious in these two cases to my own that it is unnecessary to allude to them. In my case, however, the antidote was employed very much sooner, within half an hour, and therefore its effect, as such, were more readily tested. and must carry with them the conviction that to the employment of the antidote, and not to time, nor imperfect absorption of the poison, was the improvement due.

It is interesting to note how varied are the opinions of eminent men, and how directly opposed they are in regard to this vexed question of antagonism of morphia and opium to atropia and belladonna. They may be ranged in two lines, the one maintaining that these alkaloids are as strikingly general physiological antidotes as nicotin and strychnia are supposed to be, and as physostigma and atropia have been experimentally proved to be by Dr. Fraser (including the names of observers, both of olden times and modern date, such as Herstius, as far back as 1661, Faber, 1677, and Boucher, of Lille, 1766, and Drs. Norris, Mitchell, Behier, since 1862); the other, foremost amongst whom stand Drs. Harley, L. Orfila, and Dr. Fraigniaud, with equal force and statistical artillery, denying that any physiological antagonism exists whatever between these drugs, except as regards the pupil, and asserting that neither is morphia antidotal to atropia, nor atropia to morphia.

Between these two extremes lies, I believe, the happy mean—the truth—to come to life more vigorously, when further observations have been recorded of a properly devised series of experiments, and of clinical cases carefully and truthfully related; giving as well those which seem to be adverse to, as those in favour of any preconceived ideas, and when from these cases, from these foundations, an edifice of unbiassed conclusions, cemented by sound theory, shall be erected to the glory of science, and to that highest aim of science, the welfare of mankind. Until, however, such conclusive proofs can be adduced, it is, I believe, the bounden duty of each observer to give what help he can in bringing materials to raise that temple of rational empiricism, wherein dwells true science. With these feelings, with this desire of recording a case which seems to illustrate clinically the former of the theories mentioned, is it that I have ventured to bring this paper under the notice of the Society to-night.

In the conclusions deduced by Dr. Harley^a from his observations of the phenomena attending the operation of these two alkaloids in full medicinal doses on healthy man I fully coincide (so far as my limited experience warrants me), when he says—1. “That in medicinal doses the essential effect of morphia (hypnosis) is both increased and prolonged by the action of atropia, whether induced previously or at any time during the operation of the former. 2. That atropia relieves, and, if given simultaneously or previously, prevents the nausea, vomiting, syncope, and insomnia which frequently result from the action of opium;” but I cannot go with him when he states, “that all the effects of atropia other than that of dilating the pupil are intensified and prolonged by the action of morphia, induced previously, or at any time during the operation of the former,^b whether given in medicinal or toxical doses.”

Dr. Harley has with much labour and care tabulated forty-three cases of, as he considers it, the supposed antagonism of these alkaloids. Table I. contains twenty-one of opium poisoning, treated by belladonna. Table II. twenty-two cases of poisoning by belladonna treated by opium. These tables I have very carefully studied, making direct references to many of the cases, as detailed from time to time in the medical periodicals, and I confess (although Dr. Harley has come to very different conclusions from a critical examination of the same from what I in simple earnestness to arrive at truth have), that no other conviction is forced on my mind than that opium or morphia is directly antagonistic to belladonna. And so strong is this conviction that should such another case (similar to that I have detailed) come under my charge, I would at once, and with much confidence, resort to the hypodermic employment of morphia.

As to whether the converse be equally true—that belladonna be antagonistic to opium, and that cases of poisoning by opium may be successfully treated by belladonna—however much I am induced to accept it in theory, I do not think sufficiently affirmative evidence has been adduced from which to draw any decided conclusion on the subject. For of the twenty-one cases of opium poisoning collected by Dr. Harley in table I., as that observer very properly remarks, in ten alone was belladonna employed as the sole treatment, and in all these ten cases, with the exception of one, both the poison and its antidote were administered by the intestinal canal. This mode of administration is certainly open to the objections urged by Dr. Harley, and those who agree with him, when they say:—“That the toleration of the large quantities of belladonna given in the cases of opium poisoning referred to in his tables may be fairly attributed to the extreme slowness of absorption—due partly to the paralysing influence of the opium and partly to the sickening effects of the emetics employed.”

^a Ibid., page 290.

^b Ibid., page 309.

Moreover, as further bearing on this very forcible objection, I may mention, it is well known, how that in certain conditions of the body, and in certain diseases, enormous quantities of poisonous drugs have been administered without being followed by fatal or even serious consequences.

The only one of the cases recorded, which is not open to this objection, is one in which atropia was used hypodermically, but, unfortunately, this lies open to another objection, which may, with some show of reason, be raised to it, inasmuch as the antidote was not thus employed until eight hours had elapsed after taking the poison, since it may be supposed that, at that time, the effects of the poison were passing off of themselves.

My case is, therefore, in many points, I believe, highly instructive, and not the least important is the exemption it enjoys from the two objections just noticed, since the antidote, in the first place, *was not* administered by the stomach or intestinal canal, and in the second, it *was* administered within half an hour of the appearance of the symptoms of poisoning.

In conclusion, I would impress the advantages of using the antidote by the hypodermic method for the following reasons:—

1. It can be employed when the patient is unable, or from delirium, unwilling to swallow.
2. The rapidity and certainty of the antidote thus applied.
3. The quantity given can be accurately measured.
4. The dose can be repeated as often as may seem necessary.

DR. M'SWINEY said he rose because he happened to be acquainted with the particulars of a similar case, which he would lay before the Society. Before doing so, however, he might be permitted to express, on his own behalf and on that of the Society, the sense of gratification they must all experience at the honest and straightforward manner in which the case had been detailed by Dr. Finny. He thought if cases of what were called errors were detailed more frequently by men of character like Dr. Finny, medical science would be much advanced. The particulars of the case he referred to were as follow:—On the 14th of February, 1872, 30 minims of liquor atropia were given to a man aged 40, in mistake for 30 minims of Battley's sedative solution. Almost immediately after the dose was taken it produced the most violent excitement on the part of the patient. He jumped about, screamed, declared he was dying, and raved and stormed in the most excited manner. The mistake was immediately discovered, and an emetic was at once administered, which acted. He also got a dose of brandy and of aromatic spirits of ammonia, and hot jars were applied to the feet. At 7 o'clock—three and a-half hours after he got the poison—he was seen, and 30 minims of hydro-chlorate of morphia were given to

him. He was just able to swallow the dose, and his condition was then one of entire insensibility. He appeared to be perfectly anæsthetic, as pinching the skin did not produce the slightest response. The eyes were open and staring; the irides might be said to have disappeared; the pulse was very quick and small; the surface of the body was cold and bathed in perspiration; the respiration was slow. Doses of 20 minims of the solution of hydro-chlorate of morphia continued to be administered at intervals for an hour and a-half until he got three drachms of the solution, or one grain and three-quarters. After the first drachm was given the pupils slowly began to contract, and there was no appearance of a return to consciousness. He was carefully watched, and by 12 o'clock that night consciousness had returned, and he spoke correctly. As there was a great tendency to drowsiness, he was not allowed to sleep until the following morning. At that time his consciousness became perfectly restored. He was able to state that he could not see, and although he was well in all other particulars, his pupils were insensible to light. No further bad consequences resulted, and the man was now perfectly well. Here the dose which was taken was the same as the larger of the doses in one of the cases recorded by Dr. Bell, where $\frac{1}{4}$ th of a grain was injected subcutaneously, and the quantity of morphia used to counteract it was equally large. These cases went far to prove that this preparation of opium might be regarded as a counteractive, or anti-dynamical, to belladonna. He remembered a case in which Dr. Hayden administered a preparation of laudanum to a child who had taken some belladonna berries, and Dr. Hayden thought the poisoning was prevented by it. Dr. Harvey stated positively that the only effect of either of these drugs was to increase instead of decreasing the action of the other; but the theory of these physiological antidotes was supported very much by the consideration of the remedial agent had recourse to in poisoning by prussic acid—namely, ammonia, which might be regarded as a direct counteractive, and the administration of which was the only medical treatment ever found effectual in prussic acid poisoning.

DR. HAYDEN said the Society ought to be grateful to Dr. Finny for his admirable paper. Cases of this kind were of the utmost value; and, as Dr. M'Swiney had stated, the cordial manner in which Dr. Finny had communicated the whole particulars of the case was highly creditable to him. The case which had come under his (Dr. Hayden's) observation was not, in some respects, a parallel case to that of Dr. Finny; for, in the first place, the toxic agent was the berries of belladonna. The child came in to his dinner, but the mother noticed that he was strange in manner; he took very little food, but that which he did take he

ejected, and there was found in the ejecta a dark matter, which appeared on examination to be the husks of the berry. He exhibited all the symptoms characteristic of belladonna poisoning. He stretched about his arms in a most extraordinary manner; he could scarcely answer when spoken to, and his voice was almost choked, manifestly by the dry state of his tongue. The pupils were largely dilated. He placed the boy immediately under treatment, gave him a dose of Dover's powder, and on the following day he was comparatively well. The pupils, however, did not recover their normal diameter for two or three days. The whole of this subject was of the deepest interest; and not the less so, because they knew so little of the causes that were in operation in the production of these various results. They knew something in a general way of the action of belladonna—that it was a stimulant of the vaso-motor system and of the vascular system. They knew by placing the web of a frog's foot on the field of a microscope, that an application of a drop of tincture of belladonna caused a contraction of its vessels. Many of the symptoms that followed the toxic action of belladonna might be explained in that way; for example, the rapidity of the heart's action. He was not so sure, however, that the action on the respiratory functions could be thus explained. They were taught that opium in any form acted on the heart as a stimulant: and it seemed strange that a drug which acted as a stimulant of the vaso-motor and of the vascular systems should be antagonized by another that had a precisely similar action.

The case Dr. Finny had so well described indicated a way to deal with symptoms of a similar kind. No man in an emergency of this nature could reason out the *modus operandi*, but he must feel grateful to Dr. Finny for affording him the encouragement he had done to use morphia should he have occasion to treat a case of atropia poisoning.

DR. HAWTREY BENSON had the notes of a case of poisoning by belladonna berries, which occurred under his own care about three years ago, which afforded strong presumptive evidence of the antagonistic action of the two drugs. The case was that of a child four years of age. He was coming out of the City of Dublin Hospital one evening, when he was met by a man carrying a child up the steps, and who begged him to come back and look at the child. He did so, and at once, from the appearance of the pupils, the idea of poisoning by belladonna occurred to him. He asked had the child been eating anything, and learned that some of his playmates told his parents he had been eating berries. It turned out when he vomited that they were belladonna berries, for the seeds of them were found in the ejected matter. When brought into the hospital the boy was perfectly insensible.

After some preparatory treatment he put the child on opium, giving

him three minims of tincture of opium every two hours. He continued very well under this treatment for 30 hours, and at the end of that time was so far improved that he stopped the treatment. In the meantime he had got 18 doses, that is to say 54 minims of opium. He thought this was a strong presumptive evidence that opium was antagonistic to belladonna, not merely from the fact that the child recovered, but from the fact that it showed, after taking 54 minims of tincture of opium, no sign of the physiological effects of opium, which he must have done if there were not some strong antagonistic influence at work.

DR. FINNY, in reply, thanked the members of the Society who had spoken so favourably of his paper, and expressed his gratification at finding the general opinion of the Society in favour of his views as to the physiological antagonism between these two drugs. The first case mentioned by Dr. M'Swiney was remarkable for the large quantity of opium given after the atropia; but it was given $3\frac{1}{2}$ hours after, which was an objection to the case as an illustration of the theory for which he contended; because Dr. Harvey said that after a period of three hours the usual effects of atropia poisoning were passing off of themselves. The point alluded to by Drs. M'Swiney and Hayden was well known, viz., the long continuance of the dilatation of the pupils. Though the general physiological effects of the two poisons showed they were opposed one to another, the local effect of poisoning by atropia on the pupil was not contracted by the greatest quantity of opium. In Dr. Bell's case the quantity of morphia employed was not stated, and in that respect the cases were not satisfactory. He (Dr. Finny) thought his own case was of more interest, because of the morphia being introduced hypodermically.

MR. TUFFNELL said that whenever he met with a case which belonged to any peculiar branch of the profession, he brought it before that branch, and he thought the Medical Society the most appropriate place for the detail of a few facts involving the question of the incubation of measles, or of the starting of the disease *de novo*.

On the 16th of May, last year, a soldier of the 16th regiment was sent up from Enniskillen to the military prison in Dublin. On the 28th of June the man had the symptoms of an ordinary cold, and was confined to his cell. On the 1st of July, when he (Mr. Tuffnell) entered the prison, he was told the man was ill, and when he saw him he found him covered with measles. He had been 45 days in the prison, and had had no communication with the external world during that time. He (Mr. Tuffnell) was not attending any other case of measles, no other person in the prison had the disease, the washing was all done within the walls,

and yet the man had a genuine attack of measles. Therefore, the case was this—either the period of incubation was 45 days, or the disease had sprung up *de novo*. Cases of infectious disease arising in the prison were removed to the infirmary in the Park, and this man was sent there, without any communication to the medical man of the nature of the disease, his object in delaying the transmission of the usual form sent with patients to the infirmary being that the medical attendant there should form an independent opinion as to the nature of the case. The next morning he sent down to hear how the patient was going on, and the messenger came back with a reply that “the man with the measles was getting on very well.” The antecedent history was measles, the eruption was pure measles, and he went through every stage of the disease. He had looked through the various medical works and journals to find the longest period of incubation recorded, and the longest he could find mentioned was in Dr. Churchill’s work on the diseases of children, in which he said the period of incubation could be from 10 to 30 days. He had asked Dr. Henry Kennedy whether he could find out any case of a longer incubation stage recorded, and perhaps that gentleman might now be able to give them some information on the subject.

THE CHAIRMAN—Judging from my own experience, I am not surprised at measles starting up in this way. I have seen cases of scarlatina and measles arising where he was unable to trace any incubation stage, and other medical men have had similar experience. I saw a case of scarlatina the other day, and I had not seen one for a month previously, and I could not find that the patient had come into contact with any person from whom he could take the infection.

DR. HENRY KENNEDY said he was not aware of any cases of measles where the stage of incubation was as long as the instance given by Mr. Tuffnell, and that for a long period he had held the opinion that measles and allied affections were capable of being generated from within. He saw no greater difficulty in explaining this idea than in the fact that one person might be afflicted with boils, another with anthrax or erysipelas. Even typhus fever, there were very good grounds for believing, might be so generated. After fracture of the neck of the thigh-bone it was by no means uncommon for the patient to die with all the symptoms of typhus, and also after extensive burns or other injuries where great suppuration occurred. Such cases seemed to be very analogous to those of secondary fever in small-pox, in which it was very generally admitted that the fever arose from the absorption of pus. As bearing on the subject of measles, Dr. Kennedy said he could not but allude to a case published by himself some years since, where a young gentleman had a handful of mouldy linseed

meal thrown in his face at a moment when he was laughing. The effects were very remarkable, for he was at once seized with symptoms of violent corza, attended by swelling of the face, and a dark circle round the eyes, and within 36 hours a distinct rash like wheals, but of a red colour. The attack lasted three weeks. At the time of its occurrence Dr. Kennedy was in complete ignorance of its nature ; but shortly after his eye was caught by a paper in the *American Journal* by Dr. Salisbury, in which it was proved to demonstration that the fungi of mouldy straw could, by inoculation, generate a disease very like to measles. The writer had not only inoculated himself, but also several others, and in each instance a distinct disease, like measles, was generated, in a period varying from two to three days. This most valuable paper seems not to have attracted the attention to which it is beyond question entitled ; for if vegetable fungi thus produce disease, and if the special case already noticed by himself be kept in mind it might well be asked where would such a state of things end ? Would not every fungus produce its own disease, and might not every anomalous rash, whether with or without fever, and such were very common, be fairly attributed to some like cause ? In every aspect in which the subject could be considered Dr. Kennedy thought the paper to which he had called attention one of paramount importance, and neither should it be forgotten that it had preceded by several years any investigations into the matter which had taken place in these countries.

DR. M'SWINEY—Dr. Kennedy said he did not see why typhus fever might not arise spontaneously, and that observation induces me to mention the facts of a case that came under my notice. The hospital with which I am connected does not receive typhus patients, and accordingly we see none there as a rule. Some time ago a strong-looking countryman, who came recommended by a patron of the hospital, was admitted complaining of lumbago. He remained there fifteen or sixteen days, taking his food and apparently in good health, so that it was considered as rather an abuse of the charity to keep him any longer. At the end of the period I have mentioned he was suddenly attacked with typhus fever, and he had to go through it in the hospital, and it was an extremely well pronounced case of the disease. There was no other case of typhus fever in the hospital, and but little intercourse with the external world, and it had all the appearance of a case of typhus fever arising *de novo*. I made every exertion to trace the source of the contagion, but failed to find any.

On Disinfection in Connexion with Small-pox. By CHARLES R. C. TICHBORNE, F.C.S., M.R.I.A.; Hon. and Corresponding Member of the Chicago and Philadelphia Colleges of Pharmacy, &c.

IN considering the contagious nature of small-pox and the value of anti-septics in connexion therewith, I will ask you to bear with me for a short period, whilst I consider the germ theory of disease generally. It has been conclusively proved that all rooms are filled with a certain amount of dust moving about in variable quantities—at least, to all intents and purposes, it may be considered as never being absent. The greater proportion of this dust, as shown by Tyndall in the analysing tube, is organic, or, in other words, can be destroyed by heat. Some medical men of great celebrity are of opinion that most of the epidemic diseases are carried through the atmosphere in the form of germs peculiar to each disease—that certain diseases again may be instigated by the change or fermentation induced during the growth of germs (not peculiar to the disease), at the expense of their surroundings. As regards experiments performed upon the development of bacteria, they would properly only bear upon epidemic diseases from this point of view; but I myself do not see that there is anything particularly to connect them with small-pox or such like contagious diseases. They are always the forerunners of putrefactive change where atmospheric air has been in contact, but this simply proves that the germs of bacteria are always present in ordinary atmospheric air. Here is a substance that was once a solution of milk sugar, now converted into solid lactate of lime by germs taken at as high an altitude as the top of Nelson's Pillar. But these results can be obtained equally well when there is no small-pox in the city. As regards the nature and actual appearance of most contagious germs connected with epidemics, I plead total ignorance, and think the biologist, physicist, and chemist are all equally ignorant. We are not yet armed with instruments powerful enough to investigate or classify the "milky way" of minute organism, as Ehrenberg terms it.

There is, however, another view to take of the atmospheric propagation of disease, which, I think, has been too much lost sight of. This is the mechanical action of this dust, or the raft theory, as I will call it. I, however, lay no claim to the use of the word raft. It was used by Professor Tyndall in one of his lectures to explain how the particles of a *non-volatile* salt, chloride of sodium, were always found in the air. Now, as we know that the virus of small-pox may be dried without impairing its activity, we have all the requisites for dissemination by the atmospheric rafts. It is self-evident that we can inoculate contagious diseases directly or indirectly (I use the word contagious and other similar words in their

strict sense). The Otomak anoints his thumb nail with the deadly curara, and scratches his enemy, but the Indian generally anoints his arrows with it to send his poison through the air, and yet these arrows are equally efficacious as engines of death. Is not this the raft theory of indirect contagion merely exaggerated? If we consider the immense amount of inoculable matter that is disseminated in a city like this, where 600 to 700 lie ill of the same contagious disease, we shall see no difficulty in arriving at this conclusion. I have no hesitation in saying that there is not a cubic inch of atmosphere in Dublin where the small-pox virus is not. But, like all poisons, there is, I suppose, a point of attenuation where it is inert, and to keep it below that point is the great use of volatile disinfectants. The dried virus floating upon those rafts cannot be affected by non-volatile disinfectants.

I listened a few nights ago with a great deal of pleasure to a paper read by Dr. Cameron upon this subject, it being filled with a number of observations of great originality. The tendency, however, as I understood it, was rather to undervalue disinfection as regards epidemics of this class. Now, I am of opinion that it would be dangerous in the extreme to cast away these now old and well recognized friends. In fact, to me it seems to be only within the last few years that we have been beginning to understand the principles of disinfection. We are frequently told by the medical men that there is nothing like "fresh air," which, translated chemically, means oxygen, plenty of it, and in an active state. Such remarks are the true harmonic chords of science, but how are we to get fresh air in a contaminated city, if my mechanical theory of atmospheric dust is correct, or has the slightest stability whatever? Does not the real difficulty of disinfection lie in our misapplication of each particular disinfectant which has its peculiar function, and our want of knowledge of its action on those germs at present unknown? If we use chlorinated lime to disinfect a room (chlorinated lime being simply an oxydizer), what do we do but facilitate the efforts of the atmospheric oxygen to purify by oxydation. We charge the air with nascent oxygen, or that element in its most active form. Thus this air that had been already artificially deprived of its activity outside by contact with contagious matter, is re-oxydized to its maximum capacity. Now, although this is quite consonant with our chemical knowledge, it might be said that, after all, it is but a theory; but let us see how it agrees with our experience.

On the first week in November, 1871, in an establishment the name of which, from obvious reasons, it is not desirable to mention, a case of small-pox occurred. As there were about 200 beds upon this establishment, it is almost needless to remark that considerable alarm was felt by those with whom rested the responsibility of management. A

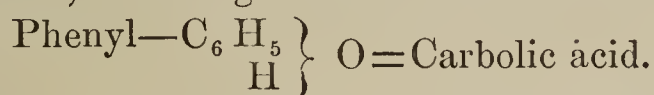
consultation was held, and a well-known and well-advertised disinfectant was used with every precaution as regards cleanliness. Imagine the consternation when case after case was sent out of the house, until the eleventh was taken to the hospital on the 6th January, who died on the 11th of the same month—a case every fifth day. A consultation was again held, and with advice the following plan was adopted. The disinfectant was changed, and the use of carbolic acid and chlorinated lime was agreed upon. The carbolic acid (pure) was chiefly used in water-jugs, a few drops in each jug. A man was told off specially to disinfect the place, and to do nothing else. In the morning he made his solution of “chloride of lime,” about $\frac{1}{2}$ lb. or 1 lb. to the gallon of water, in a large tub. It was allowed to subside, so that it was quite bright and clear when he wanted it for use. At three o’clock p.m. he went through all the rooms, sprinkling the solution over every floor, and the windows were left open, so that the rooms were dry by the time they were required for use, equal attention being paid to the mechanical cleaning of the walls. The change in the system of disinfection was made on the morning of the 11th of January, the day when the last case was buried, and from that day to the present there has not been a single case of small-pox in this seething mass of humanity.^a Can we believe, after such an instance as the above, that there is nothing in disinfection, if systematically and judiciously applied? I may mention that other establishments in Dublin have had a very similar experience. Cresylic and carbolic acid are the most efficacious volatile antiseptics, and chlorinated lime one of the most efficacious as an atmospheric oxydizer. Permanganate of potash is invaluable for certain special applications. Here is a simple experiment, which, I think, conclusively proves the value of chloride of lime as an oxydizer. I blow through a series of wash bottles and tubes. In the first bottle the air traverses a fermenting mass containing a weak solution of a ferrous salt. If the air contained any readily available oxygen (it matters not whether we consider it ozone, or condensed oxygen, or nascent oxygen, if it does its work), it will be deprived of it. This fact is demonstrated by being passed over ozone test-paper contained in the next tube. There is no evidence of decomposition. It is then passed in the next bottle through water containing a few drops of chlorinated lime, and then through a wash bottle containing a solution of ammonio-chloride of silver to remove any trace of chlorine. It lastly passes through a tube containing the ozone paper, which is now seen to be rapidly acted upon by the air. It is completely changed in its character, and is now a powerful oxydizer; and it is immaterial to our purpose how this has been brought about. It is now replenished, ready to do its

^a On the 24th of June, when this paper was going through the press, this house was still free from any case of small-pox.

duty and fight the battle with the rafts of contagion, and if it only succeeds in further attenuating the effects of this poison by burning up a fraction, the “disinfectant” has done some good.

As regards antiseptic treatment in the blood, it is a subject with which, I think, chemists are justified in dealing. Medicine may act simply by a certain portion of it getting into the circulation by diffusion, by some inherent virtue of its own upon other constituents of the body; or it may act by virtue of a partial decomposition or oxydation occurring in the blood, and producing effects not directly from the operation, but from an infinitesimal small amount of a new product being liberated in the nascent condition in the blood. Thus in the case of chloral hydrate it is probable that it is but a fraction of the dose given that finds its way by diffusion into the circulation as chloral hydrate, but there it is also converted into nascent chloroform, and produces its well-marked effects; no dose of chloroform will, when taken internally, produce similar results. Such reactions as these are the most potent and valuable in medicine.

Xylol's action is said to be due to the fact that it becomes an antiseptic in the blood. Now it is probable that if it does act as such, it is due to some product of oxydation. That it is really rapidly oxydized there can be no doubt from the fact that a peculiar odour, distinct from xylol, can be perceived in the urine. It is worthy of note that this hydro-carbon xylol, C_8H_{10} , may be viewed as either dimethylbenzene $C_6H_4(C_2H_5)_2$ or ethylbenzene, $C_6H_5(C_2H_5)$. Now if either of these be its true composition, the residual molecule benzene is the hydride of phenyl, the radical of the so-called carbolic acid. Thus if we act upon benzene by bromine, which is merely a convenient mode of oxydizing, hydrogen is given off, and we get bromide of the radical phenyl.



From the reports of the medical men I should consider the efficacy of xylol as doubtful, but it is self-evident that it may not necessarily possess specific properties to be an active medicine. It would require a lengthened experience of its capabilities at the bed-side to determine its actual value in the human laboratory. Although its action may be generally prognosticated, it can never be proved in the test-tube.

The ultimate oxydation products of carbolic acid would probably be oxalic acid and carbonic anhydride, and therefore the action of sulpho-carbolates of which some medical men speak very highly, is that the carbolic acid *per se* acts as an antiseptic being diffused into the circulation. I have tried experiments upon dilute solution of albumen and vibrios from which it would appear to me that the dilute solutions of carbolic acid destroy the activity of the vibrios before they coagulate the albumen. The more

diluted the solution of carbolic acid the more marked is this phenomenon. The sulpho-carbolates being crystalloides are more suitable for diffusion than the carbolates, whilst the residual carbolic molecule acts as if uncombined. In addition to the sulpho-carbolates of iron and sodium, I should suggest the use of the potash salt, which, from its action upon the skin and kidneys, would probably be useful. It is readily prepared. The real colour of the sulpho-carbolate of iron is green or nearly white, but it is always found of a dark violet colour in commerce, and it is stated to be that colour in works upon chemistry. This, however, is due to the fact that as soon as there is a trace of ferric salt formed it re-acts upon the carbolic acid molecule to produce a beautiful violet which is characteristic of the molecule.

In seeking for a remedy for internal disinfectives of the blood, it is evident, from my point of view, that we should try to search into the substances which will produce in the blood the antiseptics slowly, but in a nascent condition. Carbolic acid is the most available antiseptic (for the production of sulphurous acid in the circulation would be out of the question), therefore on consideration the first things that will present themselves are the methylsalicylates ($C_8H_7M'O_3$), or the salicylates. Methylsalicylates I find are slowly but perfectly decomposed in the cold, and in alkaline solutions such as the blood. Therefore it is theoretically immaterial which is used. Salicylic acid, if heated, is converted into carbolic acid and carbonic anhydride, and there seems to be a wonderful chemical relation between these two substances, *i.e.*, carbolic acid and salicylic acid, thus either of them can with facility be formed from the other.

The salicylates only requires one equivalent of oxide to convert them into carbonates and carbolate of the metal. Thus :—



And if we use dilute solution, we get the same re-action with re-agents. Thus ferric chloride gives the same beautiful violet re-action independently if we use a carbolate, sulphophenate, or salicylate; it acting in each case upon the carbolic, or phenol residue. I am sorry that this paper is not more matured, and that I cannot give you the results of some practical experiments that some of my medical friends are trying, but the situation would not allow of my doing so. In concluding these rather disjointed remarks, I have to apologize to so learned a body as this for bringing before them a lot of matter, which will probably appear stale and unprofitable, and I have no doubt occasionally not very pertinent, but I could not do myself any justice if I did not put my views on paper in some manner of sequence, even at the risk of

appearing loquacious. As I have studied the subject of disinfection and atmospheric dust with some care for years, I thought that these observations might be of use from the very fact of being trammelled by the ideas of a chemist. Out of a great mixture often comes good compounds. I almost feel that we are in a degree neglecting our duty in not constructing committees of investigation upon such occasions as the present visitation. To work with one object and approach it with the best intention of seeking truth and shutting out emulation. Such a work should run in no grooves, but should emanate from the biologist, physician, and chemist, in fact from science itself.

DR. CAMERON said, as he had recently read a paper on this subject he wished to make a few observations, more especially as he apprehended that the views Mr. Tichborne had put forward might appear to clash with those which he had submitted to the Society. He (Dr. Cameron) did not at all doubt the efficacy of gaseous disinfection to a certain extent, but what he said was this—and he spoke from the results of his own experience—that gaseous disinfection, as ordinarily carried out, was totally inefficacious as a means of wholly destroying germs in a room. He held that the recent experiments of Chauveau—who occupied the first position as an investigator in this department of medical science—and more recently the experiments of Dr. Burdon-Sanderson, one of the medical inspectors of the Privy Council and professor in the Brown Institution, rather indicated that as a rule the contagious matter of zymotic diseases was deposited on solid substances. The experiments of Burdon-Sanderson proved that while the sporules of vegetables float freely around us in the air, and are deposited in solutions with great rapidity, causing the development of vegetable life to take place in solutions in an hour or two, organic solutions might be kept for an almost indefinite period of time exposed to the air without producing the slightest appearance of animal life. It might be said that the infectious matter of small-pox or other contagious diseases might be cells of plants or different kinds of fungi, and that in that way germs of disease would float in the atmosphere; but the whole drift of scientific investigation pointed in a different way, and showed that animal infectious matter—the contagium of disease—was a non-soluble solid substance, and the experiences of mankind proved that these matters were extremely small. It was probable that they adhered to solid substances, and that they clung to our clothes. If they were floating about in the air it was utterly impossible that the germs of typhus fever, of small-pox, or of scarlatina could linger for months in rooms, as they had been proved they do, for the air was renewed hundreds of times in a day. The great use of the disinfection at present employed was that it obliged people to open the windows and let in the fresh air. They all knew how well the

Germans did everything in scientific and medical matters, and he would mention the results of their experience of disinfection during the visitation of cholera in Leipsic in 1866. The chemical Professor, Carus, was appointed head disinfector of the town, which was divided into 100 districts, each of which had a separate inspector. Never was disinfection more thoroughly carried out. Every house in which cholera appeared was disinfected with chlorine gas. And what was the result? There had been thirteen outbreaks of cholera in Leipsic since the first appearance of the disease in Europe, and never was the attack so severe as in the year 1866, when disinfection was carried out in so careful a manner. It was the same in Stettin and Erfurth, where disinfection was carried out under the orders of the Government and by a staff such as we could not have in this country. The following observations, which appeared in last week's *Lancet*, expressed his opinions on the subject of disinfection much more clearly and tersely than anything he could say, that he would beg to read them: —

“Recent experience has proved the insufficiency of the ordinary process of disinfecting dwelling-rooms without at the same time stripping off the paper and washing the walls and painted surfaces with caustic soda. In Manchester nearly all the men engaged in this duty have had fever or infectious disease, although the houses previous to their visits had been disinfected by chlorine, carbolic acid, &c. It is believed that contagious matter is retained in the paper, particularly when a number of layers have accumulated on the walls. In some cases the men removed as many as fifteen coats of paper, and they describe a fusty odour, which of itself may probably give rise to fever. We would recall to our readers the case of the Knightsbridge Barracks, where the accumulation of successive layers of size and paper formed a nidus for thousands of maggots. We must not, therefore, be satisfied with mere cleaning, whitewashing, and re-painting, but insist also on the cleansing and scouring of the walls. It is satisfactory to find that the recurrence of fever in the same houses in Manchester has greatly diminished since the introduction of this thorough mode of cleansing.”

DR. CAMERON proceeded to say that his views had been adopted by the Public Health Committee of the Corporation. They had increased their staff, and now, instead of merely disinfecting a room with chlorine gas, they removed the paper, if there were any, from the walls; scraped off the old whitewash, and whitewashed the walls afresh. If the whitewash did not destroy the infectious matter, at all events it imprisoned it. By the use of common water and whitewashing more good would be effected than by the circulation of thousands of feet of chlorine gas.

DR. HAYDEN said he was particularly pleased at hearing Mr. Tichborne's paper read so soon after the paper of Dr. Cameron, which, with all respect to him, he thought missed the point. Dr. Cameron, he thought, meant to convey that germs, bacteria in particular, were identical with the *materis morbi* of epidemic disease.

DR. CAMERON said he did not mean to convey that.

DR. HAYDEN.—Dr Cameron said that the gases used as disinfectants were unable to destroy bacteria; therefore, they were useless as disinfectants in epidemic diseases. He had alluded to the experiments of Dr. Burdon-Sanderson; but when that gentleman was questioned on the point in a recent debate he declined to say that bacteria were themselves the *materis morbi*. The opinion he expressed confirmed the view taken by Mr. Tichborne, for he used the words that they might be carriers of the disease. Dr. Cameron seemed to think the atmosphere could not be a medium for the conveyance of disease. That, however, he (Dr. Hayden) doubted. Dr. Cameron, that evening, said it would be sufficient to cleanse the walls, but if it be true that the air was impregnated with organic matters, every one of which might be the medium for conveying the *morbis materia* of disease, he could not see how that could be neutralized without acting on the whole body of air in the room. He was glad to hear this practical paper of Mr. Tichborne, because the opinions urged in it had fallen in with his own preconceived views.

DR. CAMERON.—What I meant to say was that if gaseous disinfectants did not destroy those tiny creatures, the bacteria, or destroy the contagious character of vaccine lymph, it was not likely to destroy the contagious matter of other diseases. I, therefore, said that unless they are applied dissolved in liquids, they are inefficacious.

DR. C. MOORE said that disinfection, as at present carried out in Dublin, was of very little use. In many parts of the Liberty the houses were nothing but a mass of infection, and the mere whitewashing of the walls would be ineffectual to destroy it. As long as the old floors of these houses were left full of the dirt of ages, the debris of persons who had suffered from countless epidemics, they must expect disease to prevail in these localities. Nothing but the most thorough cleansing of these houses would do good, and indeed, many of them ought to be thrown down altogether.

MR. TICHBORNE, in reply, said that Dr. Cameron, who had not heard the whole of his paper, had mistaken the drift of it. His theory was that

the contagious matter of small-pox was a substance which was carried on the atmospheric rafts, and deposited on the clothes. Before it could be deposited on the clothes it must have passed through the air; and he proposed to act upon it by gaseous disinfectants. Dr. Cameron believed in the germ theory of disease generally. There was evidently something in it; but if he believed in it, one thing was self-evident—namely, that non-volatile disinfectants could do no good, for they could not touch it; but volatile disinfectants would be found effectual; and this was wonderfully borne out by the case he had stated that evening, which was only one of several similar cases that had occurred under his own observation.

DR. CAMERON.—What do you think of the spray mode of applying disinfectants?

MR. TICHBORNE replied that it might be very useful. Disinfection was generally applied once, twice, or thrice, sometimes at long intervals; and that method was quite ineffectual. It must be applied in a systematic manner, like that which he had adopted in the house referred to; and should be kept up as long as there was any renewal of the disease.

The meeting then adjourned.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

Mitral Valve Disease.—DR. HAYDEN said he wished to lay before the Society an example of stenosis of the mitral orifice, which was invested with unusual interest, because he had had the boy who was the subject of it under observation for the last four years. During that period he had been admitted under his care into hospital no less than twelve different times, and he might say, without exaggeration, that he had observed the case *ab ovo*. The history of the case was the following:—A boy, aged fourteen, and healthy looking, was admitted into the Mater Misericordiæ Hospital under his care on the 3rd September, 1867. He had enjoyed good health, had never had rheumatism, nor had he been seriously ill up to a year previously. At that date he had been thrown from a pony in the street, and the animal had trodden upon his chest, causing great pain, which was followed by dyspnœa and expectoration of florid blood. He resumed his duties as a light porter in a grocery establishment, and for eight months enjoyed comparatively good health. At the end of that time he was attacked in the street with dyspnœa and palpitation, that obliged him to sit down. Attacks of a similar kind occurred from time to time, and in one of unusual severity on the 3rd September, 1867, he fell down in the street, and was brought to hospital in a state of collapse. When admitted he was pallid in the highest degree; his lips and extremities were livid, and he suffered from extreme dyspnœa; the heart pulsated tumultuously; pulse 150, and remarkably weak. On the next morning Dr. Hayden examined him for the first time, and his condition was the following:—The pulse was then 84, quite regular, respiration 24. He was still pale, and the lips were livid; he was, however, quite conscious. The chest was resonant throughout, and respiration normal everywhere. An impulse of a somewhat heaving character was perceptible over the lower end of the sternum. The apex pulsated in the usual position, and with ordinary force. At the point of apex-pulsation a murmur of presystolic rhythm was distinctly audible, and so characteristic that on the instant he declared the case to be one of contracted mitral opening. The two sounds of the heart were distinctly pronounced and quite clear. At the base of the ensiform cartilage a loud, soft, blowing murmur was heard, traceable for two inches upwards in the course of the ascending portion of the arch of the aorta. The presystolic murmur was audible under the spine of the left scapula, as were likewise both sounds of the heart. The boy's condition improved under treatment, so much that at the end of a month

he was discharged free from all urgent symptoms. During that month he had no return of the paroxysms of dyspnœa for which he had been admitted. He spat blood, however, repeatedly. Before being discharged the pulse had come down to 60, and the murmur at the ensiform cartilage had ceased to be audible. He was again admitted in the month of May of the following year, and during that year was several times re-admitted, always for an attack of acute congestion of the lungs, with bronchitis. During these attacks he suffered from great dyspnœa, and spat blood repeatedly, but when relieved from these, as he usually was by a short course of treatment, including digitalis and iron, he was able to resume his duties. The intervals between his admissions varied from weeks to months, the longest interval having been from May, 1868, to August, 1869. During these intervals he enjoyed excellent health, and was able to do duty, including some physical labour. When he came under his (Dr. Hayden's) care in August, 1869, the apex of the heart was displaced to the left, and was now in the left nipple line. A presystolic murmur more harsh than previously existed at the apex; a systolic murmur was also audible in the same situation, and a murmur of the same rhythm, but softer, also existed at the base, but was not transmitted through the arch of the aorta, or into the carotids. A month subsequently, when again admitted, the second sound was distinctly reduplicated, with this peculiarity, however, the reduplicated sound was audible over a limited space intermediate to, and equidistant from, the orifices of the artery and the pulmonary artery; but over either orifice and externally to it the sound was single, proving that reduplication was due to a synchronism in the closure of the two sets of sigmoid valves.

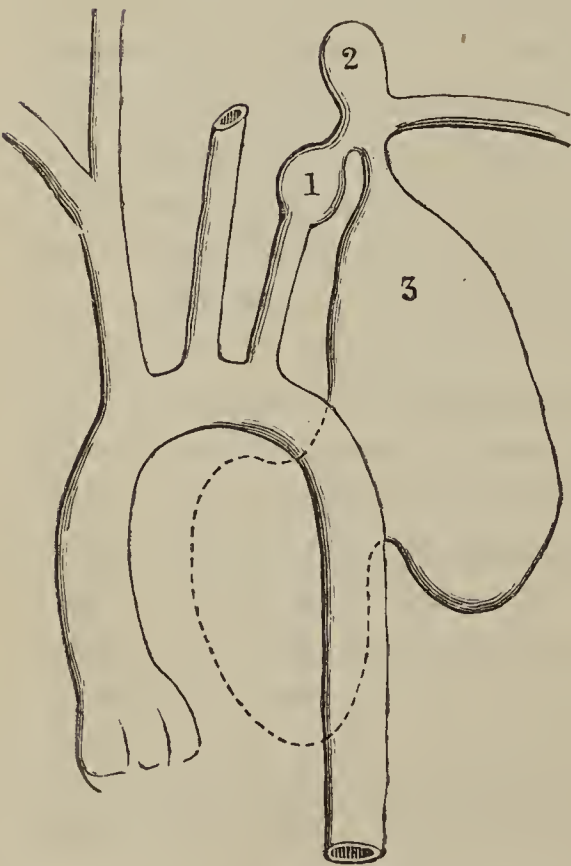
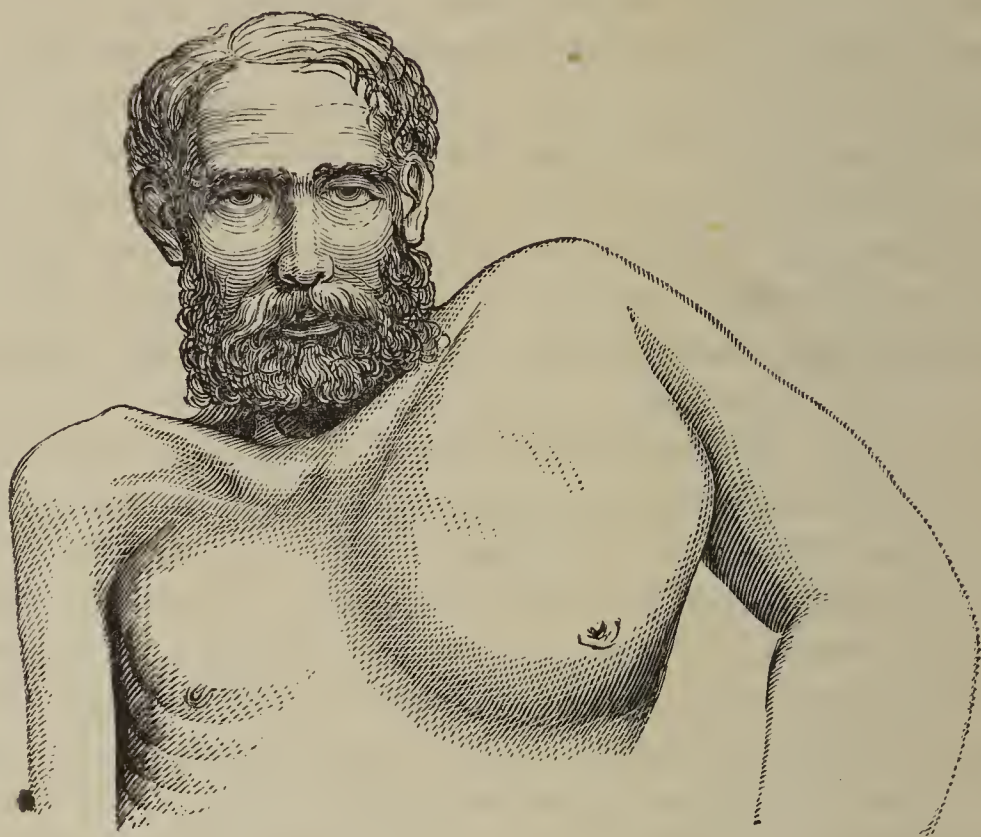
In the early part of November he was admitted for the last time; he was then suffering from dyspnœa associated with congestion of the lungs and bronchitis. The apex of the heart pulsated half an inch outside the nipple line, in the sixth intercostal space; it was rather feeble. The presystolic murmur was now marked by a loud systolic murmur, which was diffused over the entire front of the chest, so that the question arose whether it was not of aortic origin, but on this point the decision was negative, owing to the absence of systolic murmur in the carotids.

Unfortunately on the 4th of December the boy contracted small-pox. For two days subsequently he progressed favourably, having been successfully vaccinated in childhood, and presenting two well-formed scars; the eruption was sparse and unattended with fever; it was out on the third day, and on the fifth the pustules were full, and in every respect, the case, as one of small-pox, was of the mildest character. On the following morning he was confined to bed, felt quite prostrate, and breathed with great difficulty; the face was congested, the neck turgid, the respiration of a gasping character, the pulse was small but regular,

and the cardiac phenomena as last described. Examination of the chest afforded no satisfactory explanation of the sudden unfavourable change which had taken place; the lungs were slightly congested, but respiration was everywhere audible, and expectoration bronchitic and free. Yesterday (Friday) morning the boy got out of bed to the night chair, and after getting in again died immediately without a struggle. The lungs were of unusually large volume for a boy of eighteen. They were sound, with this exception, that they were slightly congested, and there was considerable adhesion of the apex of both to the chest wall, and a few old cicatrices existed in the apex of the left. There was no extravasation of blood. The internal surface of the left lung was firmly adherent to the pericardium. The pericardium contained no fluid. On the right side of the pericardium the serous lining was roughened, and corresponded to one of equal extent on the right auricle, which was likewise roughened by recent pericarditis. He thought this occurred during the last illness, and was the direct consequence of the variola. The heart was large, weighing $18\frac{3}{4}$ ounces. The right ventricle of the heart was hypertrophied and dilated. The right auricle and right ventricle were quite full of decolorized fibrin, which adhered firmly to the internal surface of the auricle, and passed through the tricuspid orifice into the right ventricle, which it nearly quite filled. This, no doubt, was the immediate cause of death; it had been forming for some days previously, probably from the date of the sudden unfavourable change already noticed, and afforded the only rational explanation of the subsequent symptoms and sudden death. The left auricle was dilated and thickened, and the orifices of the pulmonary veins much enlarged; the left auriculo-ventricular orifice was reduced to the diameter of the tip of the index finger; it was infundibuliform, formed by the thickened segments of the mitral valve, the anterior of which was of cartilaginous consistence at the base, and ended in a slit-shaped opening into the ventricle; the opening was throughout smooth, and the papillary muscles and tendinous chords were not hypertrophied. The segments of the valve were, however, competent to close the passage, owing to the pliancy of the free edge of the anterior and principal segment. The case is interesting chiefly as illustrative of the diagnostic value of presystolic murmur, which, taken quite irrespective of any other sign or symptom, he was satisfied conclusive evidence of contracted mitral opening.—*December 16, 1871.*

Subclavian Aneurism.—MR. TUFNELL exhibited a cast and preparation of a very large subclavian aneurism, and gave the following history of the case:—

T. W., aged 35, an Irishman, and a labourer prior to enlistment, had served in the army for 16 years, and 10 of these in the tropics. He had



been intemperate ; had had syphilis, and bore the marks of suppurating bubo. He was admitted into Netley Hospital on the 4th of June, 1871, and then gave the following account of his case. He stated that in March previous he one night felt a peculiar pain and stiffness in the left shoulder, which he could not account for, with numbness of the hand. Shortly after this he could not carry his rifle properly, and the symptoms increased, the pain extending to the arm and fingers, which soon became clubbed at their extremities ; the fingers lost sensation, and the veins of the arm became swollen ; the arm itself almost paralysed. He at length noticed a swelling above the left clavicle, and was admitted into hospital.

The report upon the 4th of July states that this tumour now occupied the supra and infra clavicular spaces, projecting forward beyond the level of the clavicle, and above and below, so that the bone seemed to divide the tumour into two unequal portions ; of these, the upper was the larger and more prominent, somewhat triangular, with the angles rounded off, its base along the clavicle measuring $2\frac{3}{4}$ inches, its innermost point $\frac{3}{4}$ of an inch from the sternum, and its apex reaching about 2 inches above the clavicle. The lower portion of the tumour was somewhat oval and less prominent, situated further from the sternum, being at its innermost point two inches distant, its long axis measuring two inches, pointing downwards and outwards.

The tumour pulsated visibly and gave a distinct thrill to the fingers. It could be emptied by steady pressure, but refilled immediately. Distal pressure upon the axillary artery produced little change. A well-marked rasping *bruit de souffle* existed everywhere in the tumour. The left sterno-clavicular articulation was raised up. The heart's action was regular at 82° , but forcible. The apex of the heart beat in the fifth intercostal space. A systolic murmur was heard at the base of the heart on the left side, and in the course of the descending aorta, increasing as it approached the tumour. There was neither cough nor dyspnœa. The respiratory murmur in both lungs was normal and the general health good. The sleep only was disturbed, requiring the use of hypodermic injection of morphia each night to procure rest. The temperature of the left arm was higher than that of the right ; elevation of this arm above the head reduced the size of the tumour, and caused the pulsation almost to disappear ; but it was so painful that it could only be borne for a few moments at a time. The pain in the left shoulder was now very great, and he could not lie upon either side, or on his back, being obliged to rest propped up. The pupil of the left eye was much dilated, but vision was equally good in each. The case being one unfitted for surgical interference sedatives and rest, with restricted diet, were resorted to.

On the 12th of July the sphygmographic tracings were weaker on the

left side than on the right, but upon the 13th they were stronger on the left ; the radial pulse was also more forcible and the heat of the limb greater. This condition of things varied at intervals. Upon the 18th of July a prominence showed itself at the junction of the second costal cartilage with the sternum, where a systolic bruit had become much more audible.

Upon the 23rd of August the tumour had extended on all sides, and the pain had increased to an extreme degree of severity. By the 1st of September, on which day he was admitted into the City of Dublin Hospital, the tumour had assumed very considerable dimensions, and the arm and fore arm were very much swollen, and œdematous from pressure upon the venous trunks, which state progressively increased until the date of death, on the 15th of November, when the appearance presented by the patient was that which is well shown in the annexed wood-cut, by Mr. Hanlon, of Dublin. The skin had become ecchymosed for many days preceding decease, and for some short while before a continued dark sero-sanguinous fluid had been escaping from one or two of the most prominent parts.

The *post-mortem* examination was made 24 hours subsequent to decease.

The integuments of the thoracic and axillary regions were enormously distended, the colour of the stretched skin being of a dirty yellow, mottled with spots and blotches of purple at the most prominent points. Upon reflecting the skin, the fibres of the subclavius, pectoralis major and minor muscles presented themselves spread out over the tumour, and upon these being dissected off, a dense black mass came into view, perfect at every point, though adherent firmly to the parietes that covered it, and which were necessarily opened in some places in the removal.

The clavicle, upon being carefully dissected out, was found to be eroded on its under surface, where it formed (for a certain space), the superior boundary of the aneurism.

The subclavian artery presented, upon being exposed, no fewer than three aneurisms, as illustrated by the diagram sketch, the first springing from the first portion of the vessel and being about the size of a hen's egg. This passed directly forward against the sterno-clavicular articulation. The second and third aneurisms arose from the second portion of the artery, the former passing obliquely backwards, and forming the supra-clavicular tumour ; and the latter downwards and outwards. This aneurism was, in fact, the sac that had progressed, and brought life to a close. The mouths of the three aneurisms were identical in form, each being perfectly circular, even, and smooth, though differing in size, from that of the tip of the little finger in the smallest to the dimensions of a half-crown in the largest.

This third aneurism in its progress had entirely destroyed the

whole of the first rib; the second rib was absorbed to nearly half of its extent, and the third, fourth, and fifth so eroded upon their convexities as to be almost bare, whilst the intercostal muscles and pleura had disappeared under the pressure, thus forming an opening into the cavity of the chest. The left lung too had yielded under the compressing force of the blood until the whole of this organ had become carnified, and condensed into a mass not exceeding in size the fingers and palm of an adult hand. The right lung was healthy.

The heart and pericardium had also been pushed to a certain extent from their normal position, over to the right; and the valves of the heart were all sound, but the organ itself was small, and in a state of fatty degeneration. The aorta was free from atheromatous deposits.

The extent occupied by the aneurism prior to the extinction of life was then as follows:—The whole of the left side of the chest was filled with blood, whilst the integuments were stretched to a bulk equal to that of the cavity of the thorax. Superiorly the axillary space was protruded, and the shoulder pushed up to the level of the ear, whilst posteriorly the tumour had thrust the scapula backwards and eroded it. In the clavicular region much firmly laminated fibrine was deposited, but all the remaining contents were simply coagulated blood.—*December 16, 1871.*

Cancerous Tumours on the Abdomen and Thorax.—DR. STOKES said:—These specimens are taken from the body of a young man whose case may be said to have been acute, and yet the product of the disease is one to which we usually attach the idea of chronicity. It is a case of cancerous disease, developed in the glandular system of the abdomen, and also in the lungs and heart, and, as far as I can form an opinion, the entire duration of the disease was little more than two months. The patient, a young man of only twenty-two years of age, stated that he was in good health until about ten weeks ago, when he was exposed to heavy rain and got a very severe wetting, but experienced no inconvenience from it for three weeks afterwards; then one of his legs became swollen, and he was admitted to the Meath Hospital about a fortnight ago, having been then, I suppose, about eight weeks ill. His condition was as follows:—He was largely anasarctous, and had a certain amount of ascites; he had bronchial râles and an extremely feeble pulse. In addition, a number of hard nodules (about twenty altogether), each as large as a hazel nut, could be felt through the parietes of the abdomen, and at the left sterno-clavicular articulation there was a tumour as large as a pullet's egg, hard and nodulated. The next symptom that occurred was a wasting diarrhoea; in one night he had no less than twenty-eight discharges, which were uniformly watery. From the exhaustion thus caused, he rapidly died.

The tumour above the clavicle was found to be a single mass of cancer, of a nature apparently intermediate between colloid and encephaloid cancer. The disease occupied the whole anterior mediastinum, and was associated with a tumour, which appeared a short time before the patient's death in the epigastrium, in which region there was always extreme tenderness on pressure while the patient was in hospital, but a short time before his death a tumour appeared there, which on section was found to be of exactly the same nature as all the others. Numerous cancerous tumours were found in the lungs, in the mesenteric glands, in many places in the intestinal glands, and also in the heart, which was small and atrophied. The liver was unaffected. Cancerous masses were scattered over the pleuræ and in many places presented a melanotic tinge. The special condition which this man stated he laboured under was chronic intoxication. He had met with some trouble or sorrow, and had become a hard drinker; his allowance was sixteen or eighteen tumblers a-day, together with large quantities of porter. How far such habits had to do with the rapid cancerous development I do not pretend to say, but the case is a most remarkable one of the invasion of many of the great organs of the body by malignant disease in less than two months.

I have said that he had ascites, but it was that peculiar form of it which I have only seen in cases of internal cancer—the ascites is, as it were, a moderate ascites. It does not go on increasing, as we see in cases of cirrhosis of the liver, but, having attained to a moderate extent, never so much as to call for surgical interference, then remains stationary.—*December 26, 1871.*

Hemorrhagic Variola.—DR. A. W. FOOT laid before the Society several specimens illustrative of points in the pathology of hemorrhagic variola. They had been taken from the body of a woman aged thirty, who had died recently in the Meath Hospital. During life the upper half of the body had been of an equable and deep-tinted scarlatiniform redness, while the lower extremities were covered with petechiæ and maculæ. No papule or vesicle had been developed at any period of the case, which ended on the fifth day. Death was preceded for some time by profuse menorrhagia and hæmaturia. Sanguineous chemoses and circum-orbital ecchymoses appeared. The temperature rose steadily to 105 deg. Fahr. Four hours after death, which took place quietly and without convulsion, an examination of the body was made. The cadaveric defervescence was gradual, the temperature of the axilla at the necropsy being 85 deg. Fahr., and in the interior of the abdomen 94·1 deg. Fahr. The anterior aspect of the body was as deeply coloured as the posterior parts, and the portions of skin exhibited to the Society had been selected from the front of the trunk, to obviate the

objection that their intense colouration could be in any way connected with the hypostatic liver. A hemorrhagic pleurisy on the right side was discovered, with bloody effusion and reddish, reticulated lymph. This complication had not been even suspected during life. The sub-pleural connective tissue of both lungs was the seat of minute extravasations, which gave the organs the appearance—especially over the more anæmic anterior portions—of having been bespattered with blood. The sub-epicardial tissue was similarly, but much less extensively, dotted with petechiæ. The mucous membrane of the pelves, infundibula, and calyces of the kidneys, up to the reflection of it which covers the mammillæ, was violet-coloured from congestion, and covered with arborescent vessels and petechiæ. The lining membrane of the uterus was red and exuded blood. The portions of the larger respiratory canals exhibited present intense tracheo-bronchitis, with here and there patches of a thin, silvery, adherent film. The spleen was small and firm. Both the liver and the kidneys were enlarged and fatty. One of the portions of skin, from the front of the tibia, laid before the Society presented a group of closely-set circular corrugations of the cutis, having the appearance of shrivelled vesicles. This appearance, which had been developed subsequent to maceration, Dr. Foot regarded as the result of subsidence of the œdema of the future inter-pustular spaces, and considered these shadowy vesicles as the ghosts of the eruption which might have made its way forward had not the intensity of the general dermatitis and the malignancy of the type of the disease led to the extinction of life. There was no staining of the lining membrane of the great arteries, no premature decomposition, no emphysema of the connective tissue, and no abnormal quantity of blood in the veins. *Rigor mortis* was intense and of long duration. The normal absorption bands of hæmoglobin were present in the spectrum of the blood, and the microscope did not reveal any distortion of the blood corpuscles.—*January 13, 1872.*

Cerebral Abscess.—DR. HAYDEN said he had to submit a very good example of chronic, encysted abscess of the brain. The man from whom the organ now exhibited was taken was a labourer, 35 years old. He never had syphilis, according to his own account, and never met with any injury of the head. He had been, however, intemperate in early life. He was employed as a labourer in Scotland. Three months before his death he was attacked with severe pain in the head, which obliged him to abandon his labour, and return to his native place in the north of Ireland. When he (Dr. Hayden) saw him, for the first time—namely, on the 11th of December, when he was admitted into the Mater Misericordiæ Hospital, he complained of very severe pain in the left parietal region. This pain was never entirely absent, and was much worse at night, depriving

him entirely of sleep. Indeed, he moaned throughout the night so much as to deprive the patients, in his immediate vicinity, of sleep. He also suffered from irritability of stomach, which was totally intolerant of food or drink of any kind. His skin was cool, his pulse regular, and only 60, and there was no local elevation of temperature, and no flushing of the face. There was no paralysis whatever, and no anæsthesia. The diagnosis was one of very considerable difficulty, and I may at once declare that I did not diagnose the exact nature of the affection. I had a suspicion that it was a tumour rather than an abscess, and this, from the fact of a very slight deviation outwards of the right pupil. His sight, however, was not in the slightest degree impaired. His condition remained very much the same. He underwent a slight improvement under treatment, improving so far as to be able to get out of bed, and to take his food. Indeed, from the date of his admittance, his irritability of stomach never entirely ceased, although he had a rather voracious appetite. He likewise had relief from pain. He was quite collected and conscious, and gave an intelligible and consistent account of himself. About a week after his admittance he became suddenly comatose. His urine was examined and found to be normal, both as to quantity and quality. He remained in a state of profound coma for eight hours. The next morning I found him quite restored to consciousness. He was again quite intelligent, and gave an account of himself, with the exception of the period of coma. His condition underwent no change after that date until the 30th December, when he refused, for the first time, his breakfast. Shortly afterwards he became comatose, and remained so until about nine o'clock in the evening, when he died.

On examination of the cranium, a considerable quantity of extravasated blood was found on the upper surface of the hemispheres of the brain, but as the veins were engorged, I suspect the extravasated blood had proceeded from some of these vessels which had been torn in the hasty removal of the brain, which exhibited no stain of blood after being washed. On making a horizontal section he found the left optic thalamus projecting into the floor of the lateral ventricle, and likewise projecting downwards at the base of the brain, so as to stretch and expand the corresponding optic tract. He dwelt on this fact because of the total absence, during life, of any impairment of vision. They would observe that the abscess was perfectly encysted. It was full of thick green pus. The size of the abscess was quite equal to that of a bantam's egg; its long diameter extended from above downwards, and it was slightly constricted in the centre. The cyst was of considerable strength. The interest of the case had reference chiefly to the diagnosis of lesions of this formidable character. As he had remarked already, there was no paralysis—no anæsthesia—no rotatory movement or tendency

to rotation—symptoms which had been so often insisted on as characteristic of lesions of the optic thalami. There had been no embarrassment of vision on either side. It was still a vexed question as to the precise and special function of the ganglion, known as the optic thalamus.

This case was very instructive, as showing that the optic thalamus was an organ of by no means such importance to motion and sensation as formerly supposed. It likewise showed clearly that it was connected with the sense of vision only in a very secondary and subordinate degree.—*January 13, 1872.*

Polypus of the Uterus.—DR. M'CLINTOCK said the tumour which he had the honour of exhibiting to the Society was a polypus, which Dr. Symes of Kingstown and he removed from the uterus of a lady a few days ago. The history of the case did not present anything different from what was commonly found in cases of uterine polypi. In this respect the case was typical, and might be told in a few words. The lady had had four children, the last of whom was born four years ago. She was about 42 years of age, and for several months previously had been suffering under repeated hæmorrhagic discharges from the vagina, which had greatly reduced her strength, and very materially impaired her health. Dr. Symes being led to suspect what was the matter, instituted an internal examination, and the tumour was at once detected in the vagina. By a novel mode of treatment its removal was successfully accomplished without any loss of blood whatsoever. Many instances of polypi had been exhibited there by himself and others, but the present case presented two points of interest in the pathology of these growths. They would see that the tumour was invested with a well-marked capsule. Some large vessels had traversed the neck, and the contraction of the tumour after its immersion in spirit had caused coagula to be squeezed out from the mouths of these vessels. An observation had been made by Dr. Matthews Duncan, of Edinburgh, to the effect that every peduncular tumour in the vagina was not necessarily a polypus. A great many of them were uterine fibroids, which were partially expelled and forced out from the substance of the uterine wall.

As the present specimen presented a well-marked capsule, they might be sure that it was a true polypus. The lower part of it was ulcerated and sloughing; and in process of time, if the woman survived the hæmorrhages, this decaying process would have entirely destroyed its vitality, and so the growth would have been removed; thus illustrating one of the modes by which nature herself effects the cure of a tumour of this kind. There was one other point deserving of notice. It had been laid down on by high authorities that as soon as a polypus was extruded from the uterine cavity and came into the vagina, the hæmorrhage ceased or very much abated.

Dr. Duncan, on that point, said he believed that in cases of true polypus (such as this was), the hæmorrhage did not undergo any abatement by the polypus being extruded from the uterine cavity into the vagina; but that in cases of enucleated, or partially enucleated fibroids (or false polypi), the hæmorrhage was materially lessened as soon as the tumour has descended into the vagina. The structure of the polypus in the present instance was—to use an old fashioned term—of the fibro-sarcomatous kind; not that densely-marked fibrous structure which they met with in the uterine fibroids.—*January 13, 1872.*

Epithelioma of the Leg.—DR. TYRRELL said the specimen he now laid before the Society was the leg of a man aged fifty-four, which was removed on the preceding Wednesday week. The history of the case was somewhat as follows:—He was a farmer from the county of Tipperary, and came to hospital in the latter end of December last, for the purpose of having his leg removed. He stated that thirty-five years ago, a small tumour appeared in front of the tibia, and remained there for some time. At length it burst, and small pieces of bone came away. It healed up, and after eight years of comparative health it broke out again, and another piece of bone came away. He continued able to perform his usual work, in the management of his farm. About six or seven years ago, the bone having ceased to come away, the ulcer took on a spreading character, and grew to the size depicted in the drawing on the table. It is a very large ulcer, occupying the whole front of the tibia, and reaching nearly from the knee-joint to the ankle. A profuse discharge continually issued from it, and there were repeated attacks of hæmorrhage. His health suffered considerably, and night sweats set in. He became very much emaciated, and not being able to bear it any longer, came up to town to have it removed. On examining him he found that, with the exception of a slight enlargement of the inguinal glands, he was in a healthy state. The man laboured under a continuous and wearing diarrhœa. This was got under by appropriate remedies, and the leg was then amputated just above the knee. No operation, either at the knee-joint or below it, was practicable, as it would have been impossible to get a sufficiency of healthy integuments to cover the stump. Mr. Tyrrell said he always preferred operating on the lower extremity by skin-flaps (antero-posterior), and cutting the muscles circularly. The result in this case was highly satisfactory. The stump was quite healed in three weeks, and he left hospital twenty-eight days after the operation. The disease is what is known as the warty ulcer of Marjolin. It has also been described by Mr. Cæsar Hawkins, and likewise by Professor R. W. Smith.—*January 20, 1872.*

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PART I.

ORIGINAL COMMUNICATIONS.

ART. II.—*The Symptoms of Uterine Disease.* By WILLIAM ROE, M.D., Assistant Obstetric Surgeon, Coombe Lying-in Hospital; Fellow and Examiner in Midwifery and Diseases of Women and Children, Royal College of Surgeons in Ireland; Member of Council, Dublin Obstetrical Society, &c.

I.—ANALYSIS OF ONE HUNDRED AND SIXTY-FOUR CASES OF UTERINE DISEASE.

II.—CASE OF ULCERATION OF OS UTERI, ACCOMPANIED BY HEADACHE, NEURALGIC PAINS, AND DYSPEPSIA—CONSTITUTIONAL SYMPTOMS CURED BY LOCAL TREATMENT ALONE.

III.—ULCERATION OF OS UTERI, ACCOMPANIED BY INCESSANT VOMITING, LOSS OF APPETITE, AND DYSMENORRHŒA, CURED BY LOCAL TREATMENT ALONE.

IV.—ULCERATION OF OS UTERI AND VAGINAL CYSTOCELE, ACCOMPANIED BY DYSPEPSIA AND CRAMPS IN THE LEG, RELIEVED BY LOCAL TREATMENT ALONE.

V.—ULCERATION OF BOTH LIPS OF OS UTERI, EXTENDING HIGH UP INTO THE CERVICAL CANAL, PROFUSE SANGUINO-PURULENT DISCHARGE—NO CONSTITUTIONAL OR LOCAL DISTURBANCE—CURED.

VI.—ULCERATION OF OS UTERI, GREAT EMACIATION, LOSS OF APPETITE, HEADACHE, IRRITABLE STOMACH, AND CONSTIPATION, CURED BY LOCAL TREATMENT ALONE.

VII.—ENDOCERVICITIS WITHOUT ULCERATION, NAUSEA, PAIN IN BACK, CEPHALGIA, AND GENERAL CONSTITUTIONAL DISTURBANCE, CURED BY LOCAL TREATMENT ALONE.

THE symptoms, both constitutional and local, that accompany uterine affections have, for some years, engaged my attention, as, I confess, I have always found a difficulty in diagnosing diseases of the uterus, such as inflammation and ulceration of the os or cervix uteri, without having first made a vaginal examination; and with the view of simplifying the diagnosis, if possible, I have kept a record of the symptom or symptoms most prominent in the cases of ulceration of the os and cervix uteri which have come under my observation. I have appended a table, which gives the analysis of one hundred and sixty-four cases, and the most prominent symptoms for which the patient sought relief. For convenience sake I have divided them into constitutional and local, although I am aware that it is very difficult to separate them, yet I think it is desirable that they should be separately studied. Many of the cases which are included in this analysis had been previously treated for the symptoms most prominent, the existence of uterine disease not even being suspected. Dr. Scanzoni truly says—"The sympathetic phenomena which very distant organs so often present during the course of uterine diseases are of the highest scientific importance. They are the more important because our attention is more frequently called to them than to their original exciting cause. The secondary or sympathetic diseases distress patients most, and the fact of their mentioning no other troubles may, without inquiry, mislead into the opinion that they are independent affections."

The more I see of uterine diseases the more am I convinced of the truth of the above paragraph; but, on the other hand, I have seen some cases of uterine disease where no constitutional or local discomfort was complained of, and where the disease was only by accident discovered; and although I do not think it right or prudent to subject every patient who may suffer from dyspepsia or sick stomach to the unpleasant ordeal of a vaginal examination, yet I think it is our duty, where internal remedies and general treatment have failed to give relief, to seek for the cause in the

generative organs, where, from experience, we know that it is frequently found to exist.

In the following table the cases alluded to are ulcerations of the os and cervix uteri, with and without complications, such as displacements of the vagina and uterus, &c.:—

Analysis of the Symptoms in One Hundred and Sixty-four Cases of Uterine Disease.

CONSTITUTIONAL.

Sickness of the stomach and nausea was complained of in	49 cases
Cramps in legs and cold extremities	8 „
Irritability of bladder	37 „
Painful defecation and tenesmus	23 „
Palpitation of the heart	11 „
Headache	51 „
Pain in the breasts	16 „
Hysteria, despondency, and other slight mental derangements	14 „
Neuralgic pains	38 „
Dyspepsia and loss of appetite	40 „
Sterility	21 „

LOCAL.

Pain in back	was complained of in	76 cases
Pain in the sides:—		
„ left	78	
„ right	33	
„ both	18	
	—	129 „
Feeling of bearing down (there being no prolapse)	53 „	
Leucorrhœa:—		
Simple	41	
Purulent	22	
Sanguino-purulent	24	
	—	87 „
Dysmenorrhœa	22 „	
Menorrhagia (slight)	17 „	
Abortion, where no other cause could be assigned „	13 „	

Seven cases in which there were neither local or constitutional symptoms have come under my observation within the last four years.

CONSTITUTIONAL SYMPTOMS.

Sickness of Stomach and Nausea.—Forty-nine cases of uterine disease are included in the above table, in which the stomach sympathized with the uterine affections. Now considering the great sympathy that exists between the stomach and uterus in their healthy condition, such as we see every day in the morning sickness of pregnancy, I think it is not unreasonable to infer that the stomach will be frequently disturbed in any form of uterine disease—indeed, many of the cases had been treated with alkalies, tonics, and very many other remedies, without effect; one case I have lately seen in which the patient was treated with nitrate of silver until her skin became discoloured, in the belief that she suffered from ulceration of the stomach, and in which case a small ulcer was found upon the os uteri, cured, and the sickness of stomach, &c., disappeared. A very interesting case is reported by Dr. Tyler Smith, in the Transactions of the Obstetrical Society of London, for 1859, in which the patient, from the exhaustion of vomiting in pregnancy, became so reduced as to weigh only 47½ lbs. Many instances are recorded of disgusting depravity of appetite caused by ulceration of the os. I have, however, not met with such cases.

Cramps in Legs and Cold Extremities.—In only eight cases have I noticed this symptom. They were more severe during and immediately before the menstrual period. There are various theories as to their cause, some believing them to be sympathetic or reflex, and others attributing their occurrence to pressure of the uterus or extension of the inflammation to the sheaths of the nerves. In some of the cases there was great sensitiveness of different parts of the body, the top of the head, and the spinal region especially. I have not formed any opinion as to the etiology of these symptoms, and only wish to state that as the ulceration healed they disappeared.

Irritability of the Bladder.—This troublesome symptom was present in thirty-seven cases, the patients mostly complaining of fixed pain over the pubis and inability to hold their urine for any length of time—the pain being greatest immediately after micturition. These pains I have looked upon as reflex, as no inflammation or other cause existed to account for them. This, however, it is right to say, is not the opinion held by all.

Painful Defecation and Tenesmus.—The twenty-three cases I have observed these symptoms in were peculiar in many respects,

the bowels evidently sympathizing with the diseased uterus; in some of the cases there was diarrhœa, and in others constipation, occasionally followed by diarrhœa, but in all the rectum and anus was pointed to as the seat of pain, there being no cause to account for it in those regions.

Palpitation of the heart I observed in eleven cases; this symptom causing very much annoyance and anxiety to the patients, who nearly always believe they suffer from disease of the heart. This functional derangement is usually followed or accompanied by alternate flashes of heat and cold in the head and face, ending generally in profuse perspiration.

Headache or Cephalgia was present in fifty-one cases; nausea and sickness of stomach very often accompanied this symptom. The pain was most frequently felt on one side of the head and face—generally the left, the eyeball in several cases being affected; and although some writers look upon pain in the occipital region as pathognomonic of uterine disease, I have only found it to exist in this situation in four cases. Menstruation did not appear to influence the severity of the pain.

Hysteria, Despondency, and other slight Mental Derangements.—In fourteen cases the mind seemed to be more or less disturbed—in one case to such an extent that the patient attempted to poison herself, and in another case the patient was guilty of acts of great depravity. Three of the cases were merely hysterical, but despondency I have found a very common symptom.

Pain in the Breasts.—The breasts sympathized in sixteen cases. The pain in nearly all of them was very great, but in no case have I seen any visible alteration in the appearances of the gland, although such has been observed by others. The axillary glands are said to be occasionally affected. I, however, have never seen this. I look upon this as a purely reflex symptom.

Neuralgic Pains.—Tooth and face-ache I observed in thirty-eight cases, generally associated with cephalgic or dyspeptic symptoms, local treatment, quinine, &c., having little or no effect upon these pains, which always subside as the uterine affection gets well.

Dyspepsia and loss of appetite was the symptom complained of in forty cases; suffice it to say, as the disease of the uterus was cured, the general health improved, and those unpleasant symptoms disappeared. •

Sterility.—I have met with twenty-one cases of sterility, associated

with ulceration of the uterus. Although I have placed it under the head of constitutional symptoms, I am not sure that the local lesion did not exercise a greater influence over conception, which, however, has followed in some of the cases after a cure of the ulcer had been effected.

LOCAL SYMPTOMS.

Pain in the back was complained of in seventy-six cases. Although we find pains very frequently in the lumbar or sacral regions we must not suppose that they are indicative of uterine disease. But they nearly always point to something wrong in the pelvis; the patients nearly all complained of pains across the loins, and generally intimated that they believed it was the gravel from which they suffered. In only one case have I seen inability to stand or walk, and in that case the patient suffered from piles, and the rectum and anus were very much inflamed.

Pain in the Sides.—Pains in the iliac regions I have found a most common symptom; it was present in one hundred and twenty-nine cases. It occurred most frequently in the *left* iliac region, a little above the anterior superior spinous process of the ilium. In fact so common was this symptom at my clinique that the pupils, immediately it was mentioned, diagnosed the case as one of ulceration of the os uteri. I found it to be situated on the left side in seventy-eight cases, on the right in thirty-three, and on both in eighteen cases only. Dr. Dewees considered this pain in or above the *left* groin almost diagnostic of prolapse of the uterus; but the frequency of ulceration in such cases may account for this.

Feeling of bearing down.—Fifty-three patients who suffered from ulceration of the os uteri complained of this distressing symptom, there being no vaginal or uterine prolapse to account for it. This uterine tenesmus is very distressing, sometimes preventing the patient from being able to walk for any distance, and is usually associated with leucorrhea.

Leucorrhea was present in eighty-seven cases. In the healthy state of the vagina that canal should be merely moist, but no discharge should appear externally. I have made three subdivisions of this discharge—viz., 1, Simple or white discharge, which was present in forty-one cases; and I may here mention that matico given internally cured them very quickly, and I strongly recommend those who have not given it a trial to do so. 2, Purulent, which, of course, in itself pointed to destruction of tissue, I found

in twenty-two cases; and in twenty-four cases the discharge was, 3, sanguino-purulent. The amount of discharge is not in itself a safe guide as to the amount of ulceration present, yet its appearance and characters are very important, as we can, for instance, always diagnose inflammation of the cervical canal by the tenacious albuminoid discharge and ulceration and loss of tissue by the purulent variety.

Dysmenorrhea.—Twenty-two patients complained of painful menstruation. The pain occurring during the flow in all except one, who complained of it for some days previous to menstruation setting in; in no cases did there exist any mechanical impediment to the exit of the discharge. In most of the cases the dysmenorrhea disappeared as the ulcer healed.

Menorrhagia, so slight, indeed, as hardly to deserve the name, I have seen in seventeen cases. It appeared to be greatest when the ulcer was situated near the canal of the cervix. I have found chloralum, with double its weight of glycerine, most effectual in checking those slight hæmorrhages when locally applied. Of course I have not included any cases of malignant ulceration, from which there is sometimes severe hæmorrhage, in this table. *Amenorrhea* I have not met with in conjunction with ulceration of the os or cervix uteri.

Abortion.—Thirteen patients out of the number aborted while suffering from ulceration; eleven of them had previously living children, and eight afterwards became mothers. Now, whether the abortion causes the ulceration, or the ulceration the abortion, I will leave for others to decide. In the thirteen cases given there was no other cause to be found, although anxiously looked for, or otherwise they should not be included in this table.

I have met with seven cases of ulceration of the os in which no symptom, either local or constitutional, existed, although in three of them the loss of tissue was very great; but they had one peculiarity, which is, that they healed more rapidly than the other cases under the same line of treatment.

I append six cases, taken from many, which I think fairly show the amount of suffering caused by those local lesions. I do not intend to enter into the treatment of those affections further than to point out that I very seldom do more than treat the local affection, and, as a rule, find that the constitutional symptoms subside. I do not mean to say that every case of ulceration that comes under treatment can be cured, for such is not the fact; but I cannot agree

with those who deny the local origin of these nervous symptoms, and state "that general treatment is such as to insure a cure of the local disease in spite of local irritants."

Case No. VI. is one of endocervicitis, or inflammation of the lining membrane of the canal of the cervix. Now in this case we had no ulceration, yet we had unpleasant constitutional symptoms to deal with, and they rapidly subsided under local treatment alone. Vaginitis does not give rise to any such symptoms as we find in these cases. Dr. Byford believes that there is a great similarity in the pathological relations of slight inflammation or irritation of the male urethra and that of the cervical canal. And in order to make the similarity more apparent, he places the list of the symptoms of uterine disease in juxtaposition with those of spermatorrhea. In conclusion, he says, "That the disease in the two cases is inflammation of a mucous membrane, and increase in the secretion of it, to which, in the case of spermatorrhea, is added the product of a gland—namely, the testes."

CASE I.—Headache, and Neuralgic Pains of Head and Face—Dyspepsia—Small Ulcer on Posterior Lip of Os Uteri—Constitutional Symptoms disappear under Local Treatment.

M. J., a married woman, aged thirty-five years, came under observation in March, 1869. She had been nine years married; has two children, and had a miscarriage about four months previous to my seeing her. Her second labour (about twenty months ago), was very tedious, and she said she never had good health since, although she had been treated with various remedies without effect for nearly a year. She suffered constantly from pain in the back and left side. She was never free from headache, and her appetite had completely gone. Her bowels were much constipated; tongue generally furred; always thirsty; and had a very bitter taste in the mouth. She suffered greatly from neuralgic pains about the neck, head, and face; and appeared very much emaciated. She stated that previous to the birth of her second child she had always been very healthy. She had no vaginal or uterine discharge, but suffered great pain in any attempt at intercourse. *Upon examination* I found a small ulcer upon the posterior lip of the os uteri, which was not tender to the touch; the vagina appeared healthy. The uterus was normal as to position, size, &c.

Treatment.—I touched the ulcer with the solid nitrate of silver, and afterwards dressed it with carbolic oil (1 to 3) twice a week.

Internally the treatment consisted solely of saline cathartics. The ulcer healed in about five weeks; the constitutional symptoms all disappeared, and she has since enjoyed her usual health, and has lately given birth to a son.

CASE II.—Loss of Appetite—Incessant Vomiting and Slight Dysmenorrhea—Ulceration of Os—No Constitutional Treatment—Recovery.

A. K., aged twenty-two years, unmarried, consulted me in May, 1869. She was a healthy young woman, who had lived most of her life in the country. Always menstruated regularly until about two months previous to my seeing her, when she suffered some slight pain at the commencement of the flow. She had no local pain with the exception of a sense of weight in the pelvis, but complained entirely of loss of appetite and incessant vomiting. She denied pregnancy, which I at first suspected, as she refused to submit to an examination, I ordered her some tonics which did not appear to do her any good. I again saw her in a fortnight, when she complained of a scalding feel in the vagina, and had a profuse yellowish white discharge. She now submitted to an examination. The vagina was healthy, the uterus in position. There was a very angry looking ulcer on the anterior lip of the os uteri, from which the discharge was coming. I treated the ulcer in my usual way with nitrate of silver, followed up with carbolic oil dressing. I gave no internal remedies. The ulcer healed in seven weeks, and she has since remained well, and now menstruates without pain. I may mention that the vomiting ceased almost entirely after the first application of the nitrate of silver.

CASE III.—Ulceration of Os—Vaginal Cystocele—Dyspepsia—Cramps of Leg—Constitutional Symptoms Relieved by Local Treatment.

H. H., aged fifty-one years, a widow for the last ten years; has six children, all living. Never had a miscarriage; was always healthy until about four years ago, when she had an attack of bronchitis, from which she recovered slowly. When she came under observation in June, 1869, she was suffering from the usual symptoms of dyspepsia; for which she had been treated with alkalies, &c., without any good effect. She suffered much at night from cramps in her right leg, and had a constant pain in the left side, which kept her awake at night. The only local inconvenience

she suffered was, to use her own words, a falling down of the womb. On examination I found a vaginal cystocele, the vagina being otherwise healthy. There was a large ulcer on the os (which was very patulous) extending into the cervical canal, from which there was a muco-purulent discharge.

I treated the ulceration in the usual way, and introduced a Hodge pessary, which she insisted upon having removed next day, as she could not bear the pain it gave. The ulcer healed readily; the dyspeptic symptoms and cramps of legs disappeared. She now wears the pessary, which makes her very comfortable, and is much improved in appearance.

I have before remarked that pessaries cannot, as a rule, be borne when there is ulceration about the os or cervix uteri.

CASE IV.—*Ulceration of both Lips of Os, extending high up into Cervical Canal—Profuse Sanguino-purulent Discharge—No Constitutional Disturbance—Cured.*

E. K., aged forty-eight, a hawker, applied at the Coombe Hospital in August, 1870, stating that she was told by a doctor, four years previously, that she had an ulcer on the womb, and that it might turn to cancer. Some female friends had advised her to use alum injections, which she had done regularly for the last two or three years. She complained of no local pain or uneasiness, but merely wished to have the ulcer cured, as she feared it might turn to cancer. Her health was good in every other respect. Upon examination I found the largest amount of ulceration I have ever seen. Both lips of the os uteri were engaged, and the disease extended high up into the canal of the cervix, from which there was a profuse sanguino-purulent discharge. I applied strong nitric acid freely to the entire of the ulcerated surface three times, at intervals of one week, and dressed it with carbolic oil every second day. The ulcer was healing rapidly, when she remained away for five weeks. On again presenting herself it did not look so well. The treatment was repeated, and the ulcer healed completely.

This was the worst looking case I have ever seen, yet there were no symptoms, either constitutional or local, to indicate its existence; but, I may mention, that the ulcerated surface healed with more than ordinary rapidity.

CASE V.—*Headache—Loss of Appetite—Irritable Stomach—Constipation—Great Emaciation—Ulceration of Os—Cured by Local Treatment.*

L. C., aged twenty, a milliner; looks very delicate; states she always enjoyed good health until about two years ago, when she completely lost her appetite, and fell into bad health, which she always attributed to the confinement in the warehouse where she then worked. By the advice of her medical attendant she went to the country twice, staying each time two months, but no visible improvement followed—in fact she gradually grew worse, and her family feared she was in consumption. She always menstruated regularly, but the discharge was scanty and fœtid. She complained of great pain in the back, costive bowels, and great pain in defecation. Her stomach was very irritable and bore food badly. She suffered constantly from headache. Upon examination I found the uterus in its right position, but the os and cervix were very much swollen, tender to the touch, and upon the posterior lip there was a small angry looking ulcer, from which there was a yellow purulent discharge. There was a good deal of vaginitis, which made the examination very painful. I gave her saline aperients, and applied cotton soaked in glycerine every second day for about a week, when the inflammation was much reduced. I then dressed the ulcer with a solution of nitrate of silver (gr. 40 to the ounce), and afterwards with carbolic oil. The ulcer healed, the vaginitis disappeared. She rapidly gained strength and flesh, and had not any of the symptoms at first complained of when I last saw her. I have since heard she has been married.

CASE VI.—*Endo-cervicitis without Ulceration—Pain in Back—Nausea—Cephalgia, and General Constitutional Symptoms—Cured by Local Treatment.*

L. S., aged thirty, widow, was married only three weeks when her husband met with an accident by which he lost his life. She states that for about four years she had suffered much pain during the menstrual period, with great pain across the loins and back. She had cold extremities, quick pulse, nausea, occasional vomiting, and sometimes profuse perspirations, and other symptoms of severe constitutional disturbance. Whilst menstruating, she was in the habit of taking large doses of opium and stimulants, with the usual effect. She was very desponding, and had given up all idea of ever

being well, as she stated that she had all kinds of medicine without it doing her any good. Upon examination I found the vagina quite healthy. No leucorrhea or other discharge. The os uteri was small and free from ulceration or other disease, but the cervix appeared congested. The uterus was normal as to size and position. Hanging from the os there was the characteristic discharge of transparent, tenacious, white-of-egg-like mucous. Upon introducing the sound she complained of a good deal of pain. I treated the endo-cervicitis with the sulphate of zinc points recommended by Dr. Braxton Hicks, and with very good effect. I also ordered a blister to the sacrum, and occasional tepid injections, but no constitutional treatment whatever was had recourse to.

The symptoms, however, gradually dissappeared as the local diseases yielded to treatment, and in four months from the time I saw her first she was almost well. She has since menstruated regularly, and without pain ; but, I regret to say, it has been found almost impossible to break her off the habit of taking stimulants, which she acquired during her illness, as she was previously very temperate in her mode of living.

ART. III.—*Case of Hey's Amputation of both Feet.* By HENRY THOMPSON, M.D., Surgeon to the Tyrone Infirmary.

WILLIAM TAGGART, aged thirty-five, a railway guard, was admitted into the Tyrone Infirmary on the night of the 17th of September, 1871, having sustained a crush of both feet by a railway train passing over them at Newtownstewart—a town distant seven miles. As the train which did the mischief was coming in this direction, he was taken up and conveyed here by it—the feet having been bandaged up by the medical officer of the district. It was very late when he arrived, and he was much shaken and depressed, so I thought it better to subject him to no more torture that night, but, having ordered him some brandy and water, and a draught containing thirty drops of laudanum, to leave him for the night.

Sept. 18th.—He passed a very good night considering his condition, and had quite recovered his strength, so I proceeded to examine into the state of the injured parts, and found all the metatarsal bones of both feet, together with the phalanges of the toes, crushed and comminuted, their joints almost all open, and the

fragments of the bones driven into the soft parts in every direction. There was not a bone of either foot anterior to the tarso-metatarsal articulations that was not more or less injured, and the laceration of the soft parts extended above the insteps, so that there could not be an upper flap formed on either foot without several gashes through it; the soles of the feet were also much torn and bruised, and so penetrated by spiculæ of bone, and dirtied and blackened with mud and gravel and cinders, that it was quite impossible to say how far the destructive effect of the contusing force had extended, except that, from the cold feel of the ends of the flaps on the plantar surface, I felt sure a considerable portion of them must slough. Under these circumstances I had some difficulty in deciding what was best to be done, but at last determined on saving all the bones that were uninjured, and covering them as well as the state of the soft parts admitted. So I removed all the metatarsal bones of both feet by the operation described by Hey—sawing through the projecting portion of each internal cuneiform. The flaps I made covered the bones well, but I had no expectation that they would escape sloughing. However, I gave them all the chance I could by keeping them well in position by means of as many sutures as were necessary, and putting them up dry and warm in lint and cotton, which was continued until the 21st. The stumps were then enveloped in lint steeped in a warm solution of carbolic acid, strength one in fifty, and covered with gutta-percha sheet. This thoroughly softened all the dressings, so that they were easily removed on the 23rd, when the edges of both flaps were found to have sloughed, and were separating by a very irregular line of demarcation; enough, however, being left of the thick integument of the sole to cover well all the parts of the stumps which were destined to support the weight of the body.

October 7th.—The sloughs had all cleaned off and the ligatures separated, so the dressing was changed for Turner's cerate, containing a 30th of carbolic acid, and he was allowed plenty of meat and porter.

It is unnecessary to go through the detail of a tedious convalescence, and sufficient to say that, after some months of varied treatment, the exposed parts became covered with skin, and he was able to bear his weight on the stumps, and at first, with the assistance of crutches, to move about.

But the interesting part of the case is, that after a little more time he became able to balance his body without even a stick, and

to walk and even run with but a very slight one. He left the hospital before he could accomplish any of these feats, gradually acquiring more and more power, and did not return until the 22nd of June, 1872, when he came to show me how well he had recovered. He had had a pair of boots made, lacing up the front, and with short feet stuffed with cotton, so that no one would remark or suspect his mutilation. His gait was of course more or less that of a man with club feet, but by no means remarkably so, and he is now quite able to fill some other situation under the railway board not requiring quite so much activity as his former employment.

This case is important as an instance of the value of conservative surgery. I fancy there can be but few, if there be any, cases on record of the loss of the metatarsal extremities of BOTH feet, and it must have been hitherto, in the absence of a case in point, a matter of conjecture as to whether a man under such circumstances would retain the power of balancing. It was my fear of the loss of this power that made me so anxious to preserve the attachment of the tibialis anticus to the internal cuneiform bone, for I suspect that the stumps, after a double amputation on Chopart's plan, would be of but little use. I therefore thought it much better that he should incur the anticipated tedium of a prolonged cicatrization, than risk the loss of that important power.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A System of Medicine. Edited by J. RUSSELL REYNOLDS, M.D., F.R.S. Vol. III. London and New York: Macmillan & Co. 1871. 8vo. Pp. 968.

WE have before us the third volume of the *System of Medicine*, edited by Dr. J. Russell Reynolds; as the previous volumes were not reviewed in this Journal, we will mention, for the benefit of those of our readers who have not seen them, what is the arrangement of the work. The first volume contains an account of General Diseases; it treats first of those included in class A of the official nomenclature, the maladies which are determined by agents operating from without, and which were some time ago called zymotic—namely, the fevers of this and other countries, influenza, dysentery, cholera, pyæmia, croup, hooping-cough, diphtheria, erysipelas, glanders, and hydrophobia; and secondly, of those general diseases which are determined by conditions existing within the human body, the so-called diathetic or constitutional diseases, scurvy, purpura, rickets, gout, and rheumatism. The second volume is devoted to Diseases of the Nervous System and of the Stomach; and the third, with which we are now more particularly concerned, treats of the affections of the other portions of the digestive apparatus, and of the organs of respiration. Each volume consists of nearly one thousand pages of closely printed matter, and although there are some acknowledged authorities on special subjects whose names do not appear among the contributors, the articles have, as a general rule, been written by the men whom the voice of the profession would pronounce pre-eminently fitted for the task. In the volume now before us the articles on diseases of the mouth, pharynx, and œsophagus have been written by Squarey; those on diseases of intestines and peritoneum by Bristowe, Begbie, Curling, Wardell of Tunbridge Wells, and Ransom of Nottingham; those on

diseases of the liver by Maclean, Goodeve, and Begbie; laryngeal maladies have been entrusted to Morell Mackenzie; and the articles on emphysema, asthma, phthisis, cancer of the lungs, pneumonia, cirrhosis, apneumatoses, bronchitis, and pleurisy have been contributed respectively by Jenner, Salter, Hughes Bennett, Beigel, Wilson Fox, Bastian, Grailey Hewitt, Frederick T. Roberts, and Anstie.

It would of course be impossible to present our readers with an analytical review of such a work; some of the articles might, we think, have been written more concisely and clearly, but they are all good; they contain excellent accounts of the various diseases of which they treat, and fairly represent the practice of our best physicians.

From Dr. Anstie's essay on pleurisy we extract the more important portion of the directions as to treatment, because we believe them to be eminently judicious, because we know very erroneous opinions on the subject still prevail, and because he has succeeded in presenting with great clearness the views he holds in common with some of our most trustworthy authorities.

“*Treatment.*—The treatment of pleurisy is naturally divided into that of the primary and that of the secondary forms.

“Primary pleurisy, of a well-marked type, is perhaps as little the fit subject of treatment by drugs or other artificial means, in its acute stages, as any disease that could be named, or rather, the drugs needed are very few, and are all of the stimulant-narcotic class. For the vast majority of patients, indeed, the only drug which is of considerable value is opium in one or other form, until the febrile period is passed over, when preparations of iron sometimes become very useful. I do not make this statement without having carefully watched and considered the effects of a number of internal remedies which are still used as a matter of course, and indeed considered essential by various physicians of good repute.

“To take, first, the case of primary simple fibrinogenic pleurisy, one may at once decide against all heroic remedies, since evidence abounds on all sides to show that the disease is a perfectly harmless one, unless the patient has strong tendencies to constitutional disease, and that it tends always to recovery. In fact, one has no need to adopt any treatment whatever beyond keeping the patient in one room, free from draughts, and in the posture which he finds easiest to him; feeding him steadily with nutritious food of the kind best adapted to the degree of fever and digestive derangement that may happen to be present; forbidding unnecessary movements and talking; applying hot poultices

to the side, and administering an occasional hypodermic injection of $\frac{1}{6}$ or $\frac{1}{4}$ grain morphia to keep the pain in check. Acetate of ammonia, in doses just short of those which produce decided sweating, will sometimes greatly relieve the pain and distress even without the aid of opium, and is at all times a harmless, even if an unnecessary medicament. Recently, the acetate of methylamine (a base which exists in roasted coffee, owing to the transformation by heat of a part of the coffeine) has been proposed, and apparently used with good effect, by Professor Béhier, of Paris. There is usually no necessity for alcohol, and it had better be avoided. After from six to seven days in bed, the patient will probably be well able to sit up; and the only thing necessary to forbid him is *movement*. He should sit perfectly still. If any anæmia remains, the tincture of muriate of iron in twenty-minim doses, thrice daily, is advisable as a tonic; and, on the whole, a very few days ought to see the patient completely fit to resume his ordinary work.

“In pleurisy evidently of considerable extent, and with a notable amount of *serious effusion*, the ideal of treatment should be still, as much as may be, that given above. It is now very decidedly proved that the old heroic methods of attacking severe pleurisy ought to be abandoned. In the first place, as to general blood-letting. I have witnessed enough of this treatment to be sure of two things: firstly, that the older physicians were perfectly right in the statement that it usually relieved *pain* with great promptitude; and secondly, that the relief thus given is not in the least degree superior to that afforded by hypodermic injection of morphia, except that it operates more quickly, perhaps by some five minutes, than the latter. As to bleeding checking the tendency to effusion, *that* is to me quite incredible. No such effect has been witnessed in either of the five cases of phlebotomy for acute pleurisy that I have watched at various times; and I observe that Dr. Aitken, while still adhering to the use of this remedy, recommends us not to be discouraged by the fact that the effusion may go on increasing after the bleeding, and the patient also may feel very depressed. It is true, he says, that after a certain time absorption will set in, and that it will then go on more rapidly and well than if the patient had not been bled. I cannot at all imagine on what evidence this last opinion is based; certainly it utterly conflicts with the facts of my own experience; and though I have personally seen little of the actual treatment of pleurisy by bleeding, I have examined a pretty large number of persons whose past history included one or more pleuritic attacks which had been so treated. The accounts given by such persons show a melancholy uniformity; long weeks and months of suffering from the presence of effusion in the chest, occasionally leading (through empyema) directly into active and rapidly fatal tuberculosis, nearly always slow and imperfect recovery, with

diminished vital energy, and especial weakness of the chest, and only in the rarest cases a tolerably prompt and complete recovery. The homœopathists have made their fortunes in no small degree by their 'treatment' of pleurisy, which has had the one sole merit of being purely negative, and avoiding all destructive agencies.

"A much better case, no doubt, might be made out on behalf of local blood-letting. Cupping ought never to be mentioned, being actually barbarous in the suffering it inflicts on a pleuritic patient. But leeches unquestionably do relieve pain very often in a speedy and effectual manner, and I only know of one objection to their use, viz., that morphia will relieve the pain with even greater certainty. During five years of dispensary practice I determinedly abstained from the use of leeches in pleurisy, and found morphia, even given by the mouth, a perfectly satisfactory substitute. But since the use of the hypodermic syringe has become more common, the advantages of morphia are far more manifest; and I have no doubt, personally, that leeches are now unnecessary. The first act of the physician in treating a pleuritic patient in the agony of the early acute stage, should be to inject $\frac{1}{6}$ or $\frac{1}{4}$ grain of acetate of morphia (for an adult) under the skin, and to envelop the painful side in a hot poultice. For a child under two years, $\frac{1}{40}$ or $\frac{1}{50}$ grain is enough. Such doses as these may be repeated every four hours, if necessary; but in fact it is seldom that more than two or three doses are needed in the first twenty-four hours, and afterwards one dose in each twenty-four hours is generally enough.

"I would insist strongly on the advantages, indirect as well as direct, of subcutaneous over-gastric administration of opiates; in a direct way the former is superior, as acting much more rapidly; in an indirect way, because it so much less disturbs the functions of the alimentary canal.

"Of the treatment by mercury, I can express only the most unqualified disapproval. I have watched many cases of pleurisy in which, according to the rule formerly acknowledged, mercury was given, either to complete or partial salivation, as soon as the signs of effusion became unequivocal, and I can truly say that these cases, even when they were not further complicated by the depressing influence of blood-letting, contrasted very unfavourably with the results of a treatment which entirely abjures mercury for any purpose except that of an occasional purgative. I am glad to cite, on this point, the late Dr. Hillier, who says (in his *Mono-graph on Children's Diseases*) that from experience he had been led to abandon mercurial treatment for pleurisy; and I believe that, whatever some of the class-books may still say, mercury is practically given up by the best physicians in this country, not only in children's pleurisy, but in that of adults. It seems the general opinion among those with whom I have conversed, that the absorptive action with which mercury used to be

universally credited is more than doubtful in the case of pleuritic effusions, whether fibrinous or serous. And certainly, if it fails to do good, mercury may do very sensible harm. I have seen cases in which it apparently produced the most decided anæmia—at least there was scarcely any other possible cause for the latter condition—which set in rapidly after the first occurrence of ptyalism.

“The treatment by so-called ‘counter-irritants,’ as pursued by many physicians, is no less repugnant to me than is that by mercury or bleeding. Let me make two admissions. In the first place, the mere application of a mild mustard plaster, or, still better, of a hot poultice, or epithem, undoubtedly may give some ease; perhaps even arrest incipient inflammation; and the use of small flying blisters, in the limited attacks of pleurisy which are so common in phthisis, undoubtedly appears to give relief in many cases. But the use of large blisters, especially if kept open, appears to me both useless and often prejudicial. I shall not repeat here what I have said at length elsewhere; suffice it to say that I adhere to my opinion already stated, which is the same as that previously announced by many of the greatest masters of practical medicine in the present century.

“The practice of painting the chest-wall with iodine, though not open to the same positive objections as apply to blistering, has never, in my experience, yielded any very positive results. It is, I believe, very inferior in utility to the application of the simple adhesive or the Burgundy pitch plaster, to afford mechanical support; this really does sometimes appear to favour absorption of the fluid, and it usually gives much comfort.

“The employment of diuretics to promote absorption is another point on which I find myself at issue with the opinions of many. The only drug which has appeared to me, in some cases, directly to promote absorption by means of increased diuresis, is iodide of potassium, in quantities amounting from 6 to 18 grains daily, according to the age of the patient. I think it is worth trial for two or three days (along with the external use of iodine) when effusion comes to a standstill.

“The medicine, however, which stands quite alone in its power to promote the process of absorption of *iron*—best given in the form of the *muriated tincture*; and in all cases where there is marked anæmia it should be exclusively employed from the moment when the necessity for administering opium ceases.”

After adverting to some matters of minor importance, Dr. Anstie alludes to the change of opinion which the writings of Trousseau, Bowditch, and others have produced during the past few years regarding paracentesis thoracis, and proceeds:—

“It can hardly be doubted that the whole feeling about the dangerous-

ness of paracentesis rested upon the use of clumsy and imperfect means of operation, and on exaggerated ideas of the evil effects of admitting a small quantity of air into the pleural sac. With regard to the first point, we are entitled to say that it is quite possible so to operate as to ensure that no damage will be done to viscera, and that no more than a trifling quantity of air will be admitted to the pleura. And upon the second point we may certainly now assure ourselves that there is no reason to fear serious mischief from the admission of a limited quantity of air if the opening made in the operation be afterwards properly closed. It is even unnecessary, as Dr. Bowditch's large experience has shown, to make the opening valvular. But the most important advance that has been made is the invention of apparatus which allows of the operation being made either simply exploratory, or carried on at once to evacuation of the fluid. With the instrument either of Bowditch or Dieulafoy we introduce a very small trocar and cannula guarded with a tap, and by attaching a suction-syringe and opening the tap, we withdraw a small amount of fluid, the exact nature of which we can identify: if we elect to continue the evacuation, we can do so with the aid of the syringe; if, on the other hand, no fluid can be obtained, the guard-tap has prevented the entrance of air, and we can withdraw the cannula and close the wound without having done the least mischief. By the use of the small cannula we are able to operate without risk, because, in the case of an entirely mistaken diagnosis, we should have done no damage, even though we had perforated a consolidated lung, a solid tumour, or an intercostal artery. The suction power of the vacuum-syringe will enable even thick fluid, such as somewhat concentrated pus, to be withdrawn through the smaller-sized cannulæ; but the puncture is such a trifle that, in case of our desiring a larger tube, the smaller one can be withdrawn, the finger being pressed on the spot as it emerges, and the more capacious cannula produced at the same place.

“The site of puncture should be selected in ordinary cases according to Bowditch's rules:—Find the inferior limit of the sound lung behind, and tap two inches higher than this on the pleuritic side, at a point in a line let fall perpendicularly from the angle of the scapula. Push in the intercostal space here with the point of the finger, and plunge the trocar quickly in at the depressed part; be sure to puncture rapidly and to a sufficient depth, or you may be balked by the false membranes occluding the cannula.

“It will sometimes happen that with the greatest care and trouble we are unable to get a flow of fluid at the point where we first puncture; it is then our duty to try elsewhere, for our failure may be owing to unusual thickness of the false membranes in the lowest inch or two of the pleural cavity. We thereupon repeat the puncture a little higher up, and further

towards the axillary line, and here we perhaps find fluid: at any rate, no harm has been done by the two punctures.

“The circumstances under which paracentesis ought to be performed for pleurisy are the following:—

“1. In all cases of pleurisy, at whatever date, where the fluid is so copious as to fill one pleura, and begins to compress the lung of the other side; for in all such cases there is the possibility of sudden and fatal orthopnœa.

“2. In all cases of double pleurisy when the total fluid may be said to occupy a space equal to half the united dimensions of the two pleural cavities.

“3. In all cases where, the effusion being large, there have been one or more *fits* of orthopnœa.

“4. In all cases where the contained fluid can be suspected to be pus, an exploratory puncture must be made; if purulent, the fluid must be let out.

“5. In all cases where a pleuritic effusion, occupying as much as half of one pleural cavity, has existed so long as one month, and shows no sign of progressive absorption.

“The *limits* of the operation form an important question. Formerly one great error seems to have been, that operators were often too anxious to extract the whole of the fluid; in this way they often protracted the operation to a mischievous extent, and gave abundant opportunity for that very entrance of air to the pleura which was theoretically so much to be dreaded. Among the latest writers, Bowditch and Murchison have most authoritatively shown that it is neither necessary nor useful to extract the whole of the fluid, and that the removal of just so much as may be necessary to relieve substantially the mechanical distress, will in most cases give the necessary spur to the natural process of absorption by means of which the rest of the fluid will be taken up. One rule seems absolute; the withdrawal of fluid must be arrested the moment that the patient begins to complain of constricting pain in the chest or epigastrium. Even in the case of purulent effusion there can be little doubt that absorption often takes place, though unquestionably there is here a danger that concrete cheesy matter may be left unabsorbed, and under unfavourable circumstances may become the starting-point of tubercular infection.”

“It remains to say a few words on the treatment of those least fortunate cases where, from one cause or another, a purulent fluid forms and re-forms with great rapidity after each tapping, and perhaps becomes putrid and stinking. Where it is only a question of excessive purulent secretion, simple washing out of the pleura with warm water after tapping may possibly change the action of the membrane, but in

most cases it will be necessary to keep the cannula in, cork it up, and daily allow the exit of pus, and then wash out the cavity. But in my opinion, if it comes to this, the better plan by far is the drainage tube. A needle-eyed probe, being introduced through the original opening, is carried through to the opposite chest-walls, and is there made to protrude the muscle and skin of an intercostal space, the finger outside carefully feeling for it. The probe is cut down upon, forced out through the chest-wall, and threaded with a strong thread; this is then drawn back through the chest till it comes out at the original opening. The thread is fastened to an india-rubber drainage tube (pierced with openings in the manner devised by Chassaignac), and the latter is then drawn through the chest till it issues through both orifices. Nothing more then remains but to tie the ends of the tube lightly together."

The Origin of Cancer: considered with reference to the Treatment of the Disease. By CAMPBELL DE MORGAN, F.R.S., Surgeon to the Middlesex Hospital. London: J. and A. Churchill. 1872. Pp. 87.

THIS work may be styled a small book upon a great subject. Although a small book, it may also be described as a very able essay upon a question of vast practical importance. It will add to Mr. De Morgan's already high reputation as a surgeon. Every page of it bears testimony to the fact that the author is at once an observant practitioner and a thoughtful man of science.

A great part of it, as the author tells us in his preface, appeared in the *Lancet* during the course of last year. Mr. De Morgan has been led to publish his observations as a separate treatise, from noting the prejudicial influence, as he deems it, which a prevalent theory concerning the mode of formation and dissemination of cancer exercises in the treatment of that disease. He dissents from those who hold that cancer is essentially a blood-poison disease *ab initio*. The principal purport of the arguments advanced in his essay are in support of a view differing from that taken by many eminent men, and calculated to impress upon surgeons the necessity of promptitude in the performance of operations for the removal of cancerous tumours at the early stages of their formation, as the surest means, if in any case practicable, of averting the direful sequels of the disease.

What is the origin of cancer? This is the question with which Mr. De Morgan starts. In other words, where does cancer take

its origin—in the blood, or in the tissues? Not until this question is correctly answered can we rationally approach the yet more important one—Is cancer curable? and if so, through what channel, and by what agency?

The opinions at present held with regard to the origination of cancer may be said to be fourfold: some (perhaps the majority) regard it as a blood-disease; some believe that, while there is a morbid element in the blood, there must be a special condition of tissue as well; a third section, hesitating as to the existence of any *materies morbi* in the blood, yet look upon it as necessarily constitutional; while others (who have Mr. De Morgan as the able champion of their views) regard it, in its early stages, as a local disease, either with or without a pre-existing constitutional tendency.

The so-called cancerous cachexia has long been pointed to as one of the strongest evidences of the blood-poison nature of cancer. Mr. De Morgan's criticism upon this is a good example of the candour with which he meets a difficulty, and the ability with which he seeks to surmount it:—

“With regard to the general contamination of the system by cancer—the cancerous cachexia—this, as has been said, is not a primary condition: it does not occur until the disease has made considerable advance; it may not occur at all. Cases are numerous of patients having open cancer for years without any appearance of being the subjects of serious disease: they neither lose flesh nor appetite. Again, patients often die from unulcerated cancer, especially of the internal organs; wasting away and becoming exhausted, without showing the characters of the cancerous cachexia. But they also die in the same way from the internal development of enchondroma and fibro-plastic disease. It is in the cases of ulcerated cancer that we see this cachexia most strongly marked. And, no doubt, in these cases the whole of the fluids of the body become contaminated; the continual absorption of so foul a discharge as is then present would quite account for this. We know that the continual discharge from an unhealthy ulcer or a foul abscess will induce destructive poisoning of the system; and we can readily conceive that the discharge from a cancerous ulcer will be far more poisonous, and vitiate the blood to a greater degree, and possibly in a special manner. All that can at the most be shown is, that when cancer is formed, and has grown to a certain extent, it may become a source of contamination to the system; but it does not afford the slightest confirmation to the view that the primary seat of cancer is in the blood. Nay, it is evident that this cancerous cachexia must be something very different from any supposed

blood-condition which precedes or accompanies the earlier stages of the disease. For, as we have seen, the cancer may exist for years, and no cachexia manifest itself; but if the cachexia once appear, death within a short time is inevitable. It is quite clear, then, that this vitiated state of the blood, and indeed we may say of all the tissues of the body, is in no sense, or at any time, the cause of the primary development of cancer, but is always the result of the advanced progress of the disease, in time or extent. As a rule, we do not find any special tendency to new growths, even though the system be poisoned by this absorption of effete cancer elements. The expectation of finding this cachexia, as a diagnostic sign of the disease, is fraught with most serious evil.

“The general conclusion at which I should arrive is, that in some persons, and in some parts, there is a tendency, local in its origin, to the formation of tumours. That this tendency may in some have been implanted in the tissue, even in its embryonic condition, though the actual development may not take place till years after birth; in others, although there may be a disposition to morbid growth, the actual tumour will not be developed unless under some irritation. That the morbid growth having once taken place, it will remain localized, or become diffused, in proportion to the facility with which its elements can be taken up and carried off by the structures amongst which it lies. That the period during which these elements may remain dormant is indefinite. That, save in degree, there is no real difference between the malignancy of cancer and that of some other forms of tumour, and that even the line between malignant and non-malignant growth is not clearly defined. I should place cancer, then, at the top of a scale, at the lowest point of which might be placed the simplest form of outgrowth identical in structure to the affected parts.”

Now, it may be asked, what is the practical result gained, supposing these views to be established? It is obvious, that if cancer is *ab initio* a blood-poison or a constitutional disease, the scirrhus tumour is merely a local symptom of a general condition—an expression of a disease too deeply seated to be removed, or even benefitted, by any operative treatment. On such an hypothesis, it would be as reasonable to amputate the toe of a gouty patient as to excise a cancerous tumour of the breast.

If, on the contrary, Mr. De Morgan is right in the doctrine that there is a time when cancer is a local affection in the true sense, then we are led to the rational conclusion which follows from such a supposition:—

“If the surgeon consider the case a proper one for operation, whatever be the mode he may fix on, there are two positive rules which, if there

be any truth in the views of cancer here maintained, he must obey—1, to operate early; and 2nd, to operate thoroughly. Reasons have already been given why an operation should be done as early as possible. There can be no reason, according to any ordinarily received opinion on cancer, why a cancerous tumour should not be removed as soon as discovered. There are many reasons why it should. Given a defined tumour in the breast of a woman over thirty, and however negative other signs may be, sooner or later we may be sure that an operation will be required. There may be cases of general, or partial, enlargement of the breast with pain and hardness which, while in the end they may prove cancerous, yet may result from simple chronic irritation, and which subside under proper treatment: such cases it will be right to watch. There may be cases in which a lump in the breast presents characters which leave a surgeon in doubt whether he has to deal with a tumour, or a deep abscess, or a cyst. Here exploration may be necessary; and if this reveal the existence of abscess or cyst, simple evacuation of the contents may be all that is required.

“But if tumour be undoubtedly present, such as sarcoma, or colloid, or adenoma, it is true that no harm might come from waiting, though no good would be done. But suppose it to be cancerous; what irreparable mischief may not ensue from delay? To-day the glands may be free; to-morrow they may be infected; not to such an extent as to attract notice, but not the less to be the nidus of future cancer growth. To-day all existing disease may be within the range of our operation; to-morrow disease may be distributed far beyond. Yet what is more common than for a surgeon, when a patient has pointed out to him “a lump” in her breast, and he has found that she is in good health, that there is no puckering of skin or retraction of nipple, and that the glands in the axilla are not enlarged, to assure her that she need not be uneasy, but that she should watch the swelling, and apply ointments, lotions, &c. A month or two afterwards, perhaps, she is seen again; and then there is adhesion of skin and a small hard gland in the axilla. What does this puckering of skin, &c., imply save that the influence of the disease, or rather the disease bodily, has been spreading in all directions, and that possibly it may have extended beyond reach, even if it could be detected. Are the chances of success equal under these altered circumstances? I shall believe that only when I find that leaving behind a visible piece of cancer structure in an operation is of no consequence. So insidious is cancer, that I suppose no patient has ever had a suspicion of its existence, and no surgeon or pathologist has ever seen it in its strictly primary stage. Can it be doubted that if removed at that time, the chances of re-appearance would be enormously diminished?

“I should say, then, that in the case of a doubtful tumour the surgeon

ought not to wait till its true character has revealed itself; but that he should proceed forthwith to ascertain its nature by exploration, and be prepared at once to remove it if it turned out to be cancer, or any disease likely to become serious. He would save his patient much risk and much anxiety."

In conclusion, we have only to repeat that Mr. De Morgan's essay is a concise, clear, and remarkably able exposition of the views of one who combines the great experience upon this special topic of a surgeon to the Middlesex Hospital with the acuteness of a well-trained scientific mind. It is a book to be read and read again by those who regard surgery as something higher than mere skilful manipulative work.

RECENT WORKS ON DARWINISM.

1. *An Exposition of the Fallacies in the Hypothesis of Mr. Darwin.* By C. R. BREE, M.D., F.Z.S. London: Longmans. 1872.
2. *The Power above Matter.* An Address read before the Hunterian Society. By DENNIS DE BERDT HOVELL, President of the Society. London: J. and A. Churchill. 1871.
3. *Darwinism; being an Examination of Mr. St. George Mivart's "Genesis of Species."* By CHAUNCEY WRIGHT, Esq. London: John Murray. 1871.
4. *The Physiology and Pathology of Mind in the Lower Animals.* By W. LAUDER LINDSAY, M.D., F.R.S.E. Edinburgh: Oliver and Boyd. 1871.

MR. DARWIN has a great deal to answer for. He has been the cause of the production of a host of controversial works, good, bad, and indifferent, of which the four above named may be taken as an average sample. These works all more or less touch on some part or other of the general question of evolution; but, except the last, which is a genuine contribution to our knowledge, the other works are scarcely worthy of more than a passing notice. These authors approach different parts of the subject from different points of view. Mr. Bree, in the first place, appears as a zealous and rather intemperate advocate of special specific creation; Mr. Hovell views the theory of the physical basis of life from the stand-point of a practising physician; Mr. Wright as a Darwinian apologist; and Dr. Lindsay touches the subject indirectly in one of its important

points, though his paper, it is right to say, is thoroughly practical, and in no respect controversial. In the necessarily short space which we can bestow on these authors we will discuss the leading features of each work *seriatim*.

The authors who have attacked the evolution hypothesis, have shown a misunderstanding of the true points at issue, and a strong disposition to make assertion stand for argument. Thus Mr. Hovell, in arguing in favour of an immaterial principle of vitality over and above protoplasm, uses as his argument that "protoplasm is not convertible into the tissue of any dead animal," and "the compounds of protoplasm do not exhibit the phenomena of life when brought together under any circumstances unless they are endued with a principle of vitality." Now, if the author would take the trouble to examine the subject, he would find—first, that properly so called, there is no such thing as a compound of protoplasm. As far as observation extends the invariable rule is, whenever protoplasm does enter into combination it ceases to be protoplasm. Secondly, protoplasm coming in contact with dead albuminoid matter usually, or frequently at least, converts *it* into protoplasm, or else is unchanged. Albumen, fibrin, casein, white of egg, muscle, are not protoplasm, although they are derivations from it, and our reasoning is inconclusive when it purports to conclude that because these have certain properties, therefore protoplasm has such. Mr. Hovell's immaterial agencies, however, are physical forces, and the difficulty in his mind is the grand philosophical difficulty of the relation of force to its substratum, if such really exists—a difficulty which we cannot get rid of until we dispense with the *material* idea *in toto*, and regard the world as purely dynamical, and what we commonly call matter as merely a series of atomic centres of forces; for, philosophically, nothing more is demonstrable.

Mr. Bree, in his very well-meant book, boldly attacks the entire evolution philosophy, and entrenching himself behind Flourens, Agassiz, and Houghton, manfully opposes the enemy, consisting of Darwin, Hooker, Herbert Spencer, Mivart, Wallace, Owen, Huxley, and the host of lesser lights of science enrolled under the evolution banner. His strong point is teleology, and as he hurls arrows from the three quivers above mentioned broadcast, it will simplify our study to pursue the following order in our examination—First, to see what is the precise bearing of the evidence of these three great men; secondly, to observe how far their evidence

bears out the structure built on it by Mr. Bree; and thirdly, to follow this author in his analysis of the so-called positive evidence in favour of evolution.

We will take these three authorities in the order in which Mr. Bree refers to them, and we will first, and with very great deference, examine the statements of Professor Agassiz. Now, Mr. Bree might, we think, have spared us the outpouring of the vials of his wrath on Dr. Hooker, for his reference to Agassiz in his Norwich address. We have before us now that address, and we fail to see that he is guilty of citing Agassiz as an evolutionist; but we take leave to say that all that Professor Agassiz's facts amount to may be summed up in the following propositions:—1. There is an evident design throughout nature. 2. There are in nature evident tokens of a superintending First Cause. These we believe to be solid, valid propositions, and founded on fact, but as reconcilable with *one* theory of the *method* of the Divine Artificer as with *the other*; and had we space here to spare, it would not be hard to show that the facts cited in Chapter 27 are quite as easily interpreted on the evolutionary as on the creational theory.

Next let us take M. Flourens, a long article of whose Mr. Bree has translated for us, but in which the only facts are, the non-variability of the wolf and fox, &c.; but of all the species of wolf, dog, jackal, we can fairly challenge any naturalist to state from how many originals these have been derived. No weaker point, or point telling more heavily for evolution, could be cited than this highly indefinite dog family. His great points, however, are, "their fecundity decides everything," "the animal kingdom of Aristotle is the animal kingdom of to-day." "The radical change of one species into another has never been seen;" but Flourens does not settle what is the limit of fecundity. He says of the mongrels of the jackal and dog, which he himself has produced, the first has the erect ears, the pendent tail, and does not bark; the second (mongrel-bred with dog) has pendent ears, and is less savage; the third barks and has pendent ears; and the fourth is like a dog.

Now, suppose M. Flourens had tried a corresponding experiment with a Skye terrier and a smooth English terrier, he would have had exactly a corresponding gradational story; and how any intelligent author, after detailing such experiments of his own, can go on to say, "If two distinct species, such as the dog and jackal, &c., are united, they will produce offspring that is infertile," is more than we can understand; but M. Flourens' rhapsodical writings being full of

such reasoning, have no argumentative value as long as two main facts can be proved against him—viz., that even in his own hand the test of fecundity broke down, *in re* the wolf and the jackal, and that, over and over again, the wolf and the Esquimaux dog have bred together and produced fertile offspring. Taking the entire group of the canidæ, from the wolf on the one hand to the jackal on the other, and putting down in series the names of the varieties as they come closest together, the only formulated statement we can arrive at is, that those varieties which are most closely allied interbreed most freely. The two terriers mentioned above will breed more freely than a greyhound and a lapdog, and these than a wolf and a retriever. Flourens' evidence therefore simply amounts to nothing, for his own facts disprove his assertion.

We will now examine the evidence of the third witness adduced by Mr. Bree. Now, we conceive that the wonderful facts brought forward by Professor Houghton amount to nothing more than is contained in the two propositions referred to while speaking of Professor Agassiz: a presiding personal God, making organs to accomplish definite ends; but these operations and facts in no way determine how these organs were primarily produced.

Summing up these testimonies we may (disregarding the second witness as one whose evidence, by self-contradiction, is worthless) record their weight as overwhelming in favour of teleology, and therefore, by inference, in favour of the personality of the Deity, but the facts hitherto adduced justify no further deduction.

2. Two rival theories now claim our notice—one of special specific creation, the other of evolution. Had we no further evidence it would be immaterial which we adopted, but our author claims that he can show the former to be right and the latter erroneous. His method of doing this is twofold—first, by establishing the truth of teleology; and secondly, by overthrowing the arguments advanced by the evolutionists. But if we consider the following proposition as defensible—that an organ is no more fitted for its use if directly created in a complex form, than if its structure gradually increases in intricacy, *pari passu*, with the necessity for an increasing complexity of function; and we think it is; it virtually disposes of teleology, for it puts the final cause argument on neutral ground, out of the controversial running altogether. The position of Mr. Bree, therefore, of basing on teleology his anti-evolution argument is practically untenable.

3. In the third place we will briefly examine how Mr. Bree

disposes of the positive arguments for evolution. And here he first attacks Professor Huxley's position as propounder of the "Physical Basis theory." He then assails the embryological argument, and takes the position that "there is a real and significant difference in the embryo of man as compared with brutes from the earliest period of its structural existence;" but the positional difference he gives is one which, to a practical embryologist, is utterly unknowable except in the light of adult development; and had we an early embryo of man, together with one of a monkey or even of a dog, no embryological observer could tell the difference.

Mr. Bree has certainly as good a right to give his interpretation of doubtful facts as Mr. Spencer, but he has scarcely the right to use the *argumentum ad ignorantium* in favour of special creation as against evolution (p. 80); and his analogical argument (p. 106), wherein he likens the resemblance in structure of an ovum and an amœba to the resemblance between a rock crystal and a diamond, is simply an illustration of the utterly inconsequential value of such analogical arguments. There is no similarity of the singulars. The two crystals agree only in transparency and colourlessness; they differ in shape, hardness, optical properties, chemical properties, and source. But the protoplasmata of the egg and the amœba are, as Hessling and others have shown, identical in colour, shape, physical properties, chemical properties, composition, microscopical structure, and (with due deference to the opinions quoted by Mr. Stirling) in behaviour when acted on by re-agents. There is a difference in ultimate history, that is the true mystery, but there is a similarity, nay an identity, in other respects.

In Mr. Bree's description of the whale-paddle, while he describes the parts of the great oar, pliant but without the mobility of joints, of course, by inadvertence, he fails to remind us that there are rudimentary but, on his own showing, functionally forearm muscles developed even here. Truly other authors than the evolutionists can omit to quote what does not serve their purpose! Mr. Bree cannot be a very minute observer, or he must have singularly few ears submitted to his observation, or else the English ear must be farther removed from the ancestral type than the Irish, for it is an unfortunate fact that, in our experience, one ear in three has the helicine inflection described by Mr. Woolner; and our author, also, in upholding the dignity of the human smell-apparatus, has forgotten that there is the same preponderance of grey matter in the nerve of a dog or of an ox as there is in that of

a man; and though Mr. Bree may not have noticed the exceedingly developed sense of smell in the horse, yet it has been noticed by several competent observers. The fact stated about the diminishing alveolar accommodation for the teeth in highly-civilized races is, unfortunately, an undeniable reality, borne witness to by many, especially of the American, dentists; and, as students of anatomy, we must protest against any such wholesale ill-treatment of facts as the slurring over of the supra-condyloid foramen, coccygeal gland, the embryonic relations of the prostate, &c. We are compelled to say that by his unfair treatment of these facts (which are just as true as any other well-ascertained structural points in the science of anatomy), he is liable to forfeit a considerable share of the influence which his zeal would otherwise command. We must also, as anatomists, protest against his treatment of the argument from anomaly, for every one who has dissected twelve subjects carefully will find in them anomalies positively prejudicial to utility. "Least action" can never account for muscle suppressions, muscle fusions; nor could any amount of skeletal abnormality *produce* a muscle whose germ does not normally exist in the human body—a *rhombo-atloid* or *levator claviculæ*, for example. Mr. Bree must be at his wits' end before he would devise such an untenable theory for varieties.

Another statement which we think we have a right to challenge is that at pp. 182 and 316, in which he speaks of Kowalevsky's observations as "mistakes," and lauds Donitz's observations; but he does not tell us what Donitz's observations are, but only quotes a statement regarding them from the *Quarterly Microscopical Journal*, which statement he denounces. Now, before asserting that Kowalevsky and Kupffer are wrong and Donitz is right, it would be but fair that he should put before us a statement of the views of these authors equally, and give a better reason for accepting the latter observer's views than the apparent one, that they fall in with his theory. The course he takes suggests to the reader that our author has not taken the trouble of reading Donitz's paper, but quotes it merely at second-hand. That he does so in other instances is evidenced by his invariably misspelling the name of Hæckel, and misrepresenting the phylogeny of man as supposed by that author in his work "*Naturliche Schöpfungsgeschichte*." Interpret them as we may, there is no doubt that the facts observed by Kowalevsky and Kupffer are true, and the observations are of a kind that do not really fall under the suspicion of microscopic fallacies,

as Mr. Bree, without a shadow of foundation, would have us believe.

There is one observation which Mr. Wallace has made whose truth we have felt over and over again. It is only when we are brought face to face with a large number of individuals of any one group, that we realize the true difficulty of the discrimination of species. It is all very well for gentlemen like Mr. Bree to read works of natural history, to examine typical specimens, and to accept cut and dry definitions; but if brought into any very large and unarranged museum, with descriptive books and plates, the difficulties of the true identification of species are no trifles. In any large collection of shells this will be found alarmingly true; or in some large genera, like *Serranus* among fishes, *Tropidonotus* among reptiles, *Hieracium*, *Rubus*, or *Salix* among plants. We would just ask any one who has called Mr. Wallace's statement in question, to take a large and unarranged collection of Palæozoic Brachiopoda, and Mr. Davidson's description of the species, and to proceed to name them. There are well marked and diverse forms. Shell *a*, or hieracium *a*, is exceedingly diverse from shell or hieracium *x*; but *b* and *a* are specifically indistinguishable, *b* and *c* equally so, *c* and *d* also; yet the sum of the indefinite and undefinable variation in the interval *a*—*æ*, amounts to something tangible and defined.

Mr. Bree treats our old friend the lancelet (*amphioxus*) very cavalierly, and should remember that though he is a jelly-like being, yet his place in nature is far from doubtful. Müller, Retzius, Goodsir, Kowalevsky have studied him too carefully and too well to leave its position in doubt.

But we have gone farther into the detail of this book than we intended, and therefore must briefly sum up. That Mr. Bree is deserving of commendation we most heartily concede, and if he has attempted a task beyond his strength, he has most zealously tried to carry it through. His great weakness in the book is the display of a partisan spirit, and the tendency to slur over arguments that are hard to grapple with. The fact is, that either view must always remain hypothetical; or, as Dr. Rolleston has most truly remarked, "The acceptance or rejection of the general theory will depend, as does the acceptance or rejection of other views supported merely by probable evidence, upon the particular constitution of each individual mind to which it is presented." If in what we have said we have dealt rather hardly with Mr. Bree in a few

points, it is because being so terribly in earnest he will not permit us to take the medium course of suspended judgment, and if left unchecked will try to turn adverse facts as if they were in his favour.

We have not entered into the psychical question which Mr. Bree discusses at length, and which is also the subject of Dr. Lindsay's pamphlet. Of the latter all we can say is, that it is a pity it is so short, for the subject would well bear expanding by one of Dr. Lindsay's great experience and erudition, and we hope to see him bringing out his observations in a more detailed form.

Leçons de Pathologie Experimental. Par M. CLAUDE BERNARD, Membre de l'Institut de France et de l'Académie de Médecine; Professeur de Médecine au Collège de France; Professeur de Physiologie Générale au Muséum d'Histoire Naturelle, &c., &c. J. B. Baillière et Fils. Pp. 604.

WE were much gratified to find on our table another work issuing from the pen of the learned Professor of Medicine in the College of France, and at the same time were grieved to learn that a painful malady had compelled, for six years, the relinquishment of his labours, so useful to science. In the preface to the work before us the professor mentions the names of some of his illustrious predecessors in the professorial chair—Portal, Laennec, Magendie—and we venture to think that the name of Claude Bernard is well fitted to rank with these. We believe that we but express the general opinion in saying that the most important additions to our knowledge of physiology in late years, have been the discovery of the production of amyloid matter by the liver cells, and the further changes which this material undergoes, demonstrated in the year 1857 by M. Bernard.

The lectures composing the present volume are divided into two portions. The first part was long since published in the columns of a weekly contemporary. The second series of lectures was delivered in the years 1858–59, and appeared at the time in various French journals.

M. Bernard conceives that nothing will tend more to facilitate the progress of the philosophy of medicine “than a systematic study of experimental pathology.” As vivisections have much increased our knowledge of physiology, so, in order to arrive at a

knowledge of what takes place in the diseased body, we must have recourse to "pathological experiments on the living subject (*vivisections pathologiques*).” To obtain subjects in a state of disease we must render them so; "we must, in short, introduce into experimental pathology a knowledge of exterior agents, together with their effects on the constitution." In accordance with these views a series of experiments were carefully conducted by the professor in the presence of his class. These experiments and the results deduced from them were, as already mentioned, published at the time, and are now *facts* of science. As these are well known to the medical public we do not feel called upon to further discuss them.

M. Bernard devotes a lecture to the consideration of diabetes, limiting himself to its physiological mechanism. He believes that every morbid condition is but a perturbation of a normally existing physiological condition. "Now, in the liver of the adult the glycogenic material is concentrated, which, in the foetus, is found also in the lungs, muscles, skin, and its dependencies, and upon the production and destruction of this material the nervous system exercises a great influence. It is in this action of the nervous system that we must seek the explanation of the mechanism of diabetes." This glycogenic material having been further organized is destined to nutrition. But in diabetes, instead of being thus adapted to nutrify the tissues, the material undergoes a retrograde metamorphosis (*évolution rétrograde*), is changed into sugar, and is expelled from the economy. The cause is to be sought for in the nervous system. By a series of observations our author has arrived at the conclusion that "the sympathetic is a restraint upon the organs, which permits them merely to take nourishment. When the organ is abandoned to itself, or rather when it performs the functions which we connect with the existence of life, it becomes always the seat of phenomena of decomposition." The action of the sympathetic moderates the circulation and diminishes the temperature. If the influence of this nerve be abolished or lessened, the temperature is increased. It is to loss of power in the sympathetic that the phenomena of the disease are to be ascribed.

M. Bernard thus sums up his views of the disease:—

"In diabetes the liver secretes in excess. The material which is there changed into sugar cannot be transformed into a product of more complex organization. There is a preponderance of decomposition.

"Diabetes may then be considered as a nervous malady, due to an

excessive action of the nerve presiding in the liver over decomposition (*nerf désassimilateur du foie*), which causes the premature decomposition of a material which should subserve nutrition in another manner.

“In this malady the temperature of the liver increases together with the activity of the circulation. Hence arises, without doubt, an increase in the amount of intestinal absorption, and from this results the dryness of the intestinal mucous membrane, the thirst, the voracity, &c., which are observed in the disease. All these phenomena are connected with the excess of activity of the circulation in the liver.

“The treatment should be directed to the nervous system. If the sympathetic nerve could be galvanized, it would probably be a useful procedure.”

It will be observed that this theory of diabetes confines the source of the malady to the liver, influenced by the sympathetic nerve, which causes hyperæmia and hypersecretion in the gland. Schiff also believes in the hyperæmia of the liver induced by a retardation of the current of the blood, the development of a diabetic ferment being the result.

Our own opinion is that the greatest caution is required in coming to a definite conclusion as to the pathology of this most obscure disease; but that, in the present state of our knowledge, the theory of M. Bernard appears the most reasonable, and most strongly supported by physiological investigation.

In conclusion, we have to thank M. Bernard for having brought these lectures, heretofore scattered through various journals, into a single volume, and thus affording to students of medicine a facility of reference.

On the Law which Regulates the Frequency of the Pulse. By A. H. GARROD, B.A. (Cantab.) London: H. K. Lewis. 1872.

MR. GARROD is favourably known to students of physiology by his works on other problems of the circulating system; and in this little pamphlet he has, by a number of simple experiments, thrown light on a very practical and interesting subject. Our general idea of the cause of pulse frequency is that it depends on the intra-vascular pressure, produced by quantity of blood and variety of contraction of the smaller arteries; that, as blood-pressure increases, the heart has greater difficulty in emptying, and the pulse is slower, and *vice versa*.

Mr. Garrod experimentally determined that the blood-pressure

produced by increased arterial resistance, produces a direct and important influence on the pulse. His experiments consisted in the exposure of the body to cold by lying nude for a measured time on the floor, then getting into bed, and observing the pulse-changes in the varieties of peripheral arterial tension. That his observations are accurate we have no doubt, as we have repeated his experiments with the same results.

Mr. Garrod has also demonstrated that the varieties of blood-pressure, depending on quantity of blood in the vessels have no influence on the pulse. On bleeding a donkey, a terrier, and two rabbits, the pulse was found to increase, but to diminish or remain standing throughout.

His conclusion is that the frequency of the pulse depends on the resistance due to the varying degrees of contraction of the muscular coats of the smaller arteries, and not at all on the intra-vascular pressure, *i.e.*, on the quantity of blood.

He has not entered on the subject of the nervous influence affecting the heart; but that has been carefully worked up of late by Von Bezold, Cyon, and so many others, that the consideration is not necessary to the question in hand. He has deduced from this that the reason that the pulse is quicker in the standing position than the recumbent is the fact that in the latter the pressure on the dependent parts closes a number of vessels and increases the resistance. To this we may add, as another fact, that the standing position is in reality an active one, requiring muscular effort; and as, during such effort, there is a natural flow of blood towards the acting parts, the resistance is so far diminished. Mr. Garrod deserves the thanks of physiologists for this little work.

A Treatise on Hæmophilia, sometimes called the Hereditary Hæmorrhagic Diathesis. By J. WICKHAM LEGG, M.D., Casualty Physician to St. Bartholomew's Hospital. Pp. 158.

WE have read with interest this really exhaustive account of a disease which occasionally presents itself in practice, and of which, perhaps, sufficient note is not taken. "By hæmophilia is meant a disease, both hereditary and congenital, usually lasting throughout the life of the patient, accompanied by a hæmorrhagic diathesis, and a tendency to swelling of the joints." This malady exhibits itself in infancy, and, despite treatment, persists, as a rule, during the entire life of the patient.

American physicians apply to those afflicted with this malady the concise and expressive name of *bleeders*. The German name *bluer*, is a translation of this; whilst the French name is *hémophilie*.

Dr. Legg states that there are three well-marked degrees of hæmophilia. In the first—the most typical—“there is a tendency to every kind of hæmorrhage, traumatic or spontaneous, interstitial or superficial. The tendency to the swelling of the joints is also well marked. This form is scarcely ever seen in women, but it is by far the most common among men. The second degree of the disease is infinitely less intense; spontaneous hæmorrhages from the mucous membranes only are present.” This is the variety generally seen in females.

In the third form the liability to spontaneous ecchymoses is the only manifestation of the disease. The bleeding, whether spontaneous or traumatic, is almost always capillary. The fluid merely oozes out of the part. The blood which first appears coagulates naturally, but when much has been lost this property is lost, and the fluid resembles water in which fresh meat had been washed. Large tumours, sometimes reaching the size of an adult's head, may form in consequence of trivial injuries. The skin over these is black or blackish blue, with a zone of redness. The subjects of hæmophilia are also prone to recurring swelling of the joints, which become very painful, and are distended with fluid. These latter attacks are generally idiopathic.

It is worthy of remark that the daughters of bleeder families are in a great measure protected against the malady, whilst the transmissibility of the disease through them is increased. It is the male offspring who usually exhibit the taint, and the transmissibility through these is less.

In speaking of the treatment of this disease, Dr. Legg very properly remarks that the salts of mercury are strongly contra-indicated. Blood-lettings, leeches, and blisters should only be employed with great caution. Capital and other operations should be avoided; and when injuries are inflicted, energetic methods should be employed to control hæmorrhage. Compression is, perhaps, the most effectual means of obtaining this end; whilst ergot and such like drugs may be administered internally. The tincture of the perchloride of iron is especially serviceable.

We must refer our readers, for a further account of hæmophilia, to this excellent little work. Each page has foot-notes, illustrating

the text and referring to the authors quoted, and there is appended a full account of the literature of the disease, as well as an excellent index.

Notes on Comparative Anatomy. A Syllabus of a Course of Lectures delivered at St. Thomas's Hospital. By WILLIAM MILLER ORD, M.D. London: Churchills. 1871. Pp. 203.

Introduction to the Study of Biology. By H. ALLEYNE NICHOLSON, M.D., &c.; Professor of Natural History, University College, Toronto. Edinburgh: Blackwoods. 1872. Pp. 160.

WE had occasion recently to express our regret that there was no good students' manual of general zoology in English. We cannot consider either of the books mentioned above as supplying this want. The first mentioned is an exceedingly unpretending book, but it is good of its kind; and to those students who have the privilege of hearing Mr. Ord's lectures this book must be invaluable. Without a commentary, however, it would not be of very much use to a student, unless he had either a good teacher or a good biological library to render intelligible the highly-condensed knowledge contained therein. To an advanced student this work will be useful as a speedy means of self-examination; and to a young lecturer it would give the groundwork of an exceedingly good course—but the absence of detailed definitions and the absence of plates, would necessarily impair its usefulness for general students.

As far as it goes, the book has been carefully compiled, but it is rather unequal in detail, and in a few places omissions of new and important points may be detected; still, on the whole, it is as good a book of its kind as we have—and we have no doubt it will be exceedingly useful in preparing for competitive examinations.

The other work mentioned above is a reprint, with a few additions, of the introductory chapters of this author's *Manual of Zoology*, and it is improved in one respect—namely, in the diminished number of quotations and inverted commas which disfigured that book. The morphological part is very much weaker than the physiological, and altogether the work is only suited for exceedingly junior students. The same fault, though in a minor degree, mars this book which we remarked in the author's larger manual—namely, the quotation of facts, at second-hand, from

the English manual-writers, and an evident want of acquaintance with the writings of our German zoological contemporaries. Considering the enormous importance of the range of subjects included under the title of Biology, we cannot but think that a student who wished to gain a knowledge of the science would require a much more extended introduction than Dr. Nicholson's book could give.

PART III.

HALF-YEARLY REPORTS.

REPORT ON MATERIA MEDICA AND THERAPEUTICS.^a

By WALTER G. SMITH, M.D., Dubl.; Fellow and late Examiner in Materia Medica, K. & Q.C.P.I.; Assistant Physician to the Adelaide Hospital.

ART. 15. Absorption of insoluble substances.

- „ 2. Aconitine.
- „ 13. Alcohol, elimination of.
- „ 4. Antiseptics.
- „ 8. Apomorphia.
- „ 20. Atropia, uses of.
- „ 16. Calomel, digestion of.
- „ 5. Carbolic acid.
- „ 23. Chloral.
- „ 9. Dover's powder.
- „ 21. Ergotin, in varix.
- „ 19. Eucalyptus globulus.
- „ 10. External applications, dangers of.
- „ „ „ „ (α). belladonna.
- „ „ „ „ (β). emplastrum calefaciens.
- „ „ „ „ (γ). cantharidism.
- „ 1. Glycerine.
- „ 22. Guarana.
- „ 12. Hydrocyanic acid, action of.

^a The author of this Report, desirous that no contribution to the subjects of Materia Medica and Therapeutics should remain unnoticed, will be glad to receive any publications which treat of them. If sent to the correspondents of the Journal they will be forwarded.

ART. 6. Hypodermic solutions.

- „ 3. Iodide of potassium.
- „ 7. Morphia, effects of.
- „ 17. Oleates of mercury and morphia.
- „ 14. Phosphorus, (α). absorption of.
- „ „ „ (β). poisoning by.
- „ „ „ (γ). administration of.
- „ 11. Quinine, (α). substitute for ergot.
- „ „ „ (β). curious effects on retina.
- „ „ „ (γ). effect on temperature.
- „ „ „ (δ). determination in urine.
- „ 18 Santonin, serious effects from.

1. *Glycerine*.—Attention has frequently been called to the impurities often found in glycerine reputed to be pure, and which are sometimes the cause of considerable irritation, and in former reports these points were brought under notice. Mr. J. Remington, of Philadelphia, has examined six different commercial specimens of glycerine, with the following results:—

Brands	Sp. Gr.	Colour	Odour when warm	With Nitrate of Silver
1	1·253	None	None	No ppt.
2	1·240	Yellowish	Fatty	Heavy white ppt.
3	1·250	Yellowish	Slight	Rose colour
4	1·254	None	Empyreumatic	No ppt.
5	1·250	Dark	Like glue	White ppt.
6	1·245	None	Slight	Rose colour

They all became more or less discoloured with sulphuric acid; Nos. 2 and 5 gave a ppt. with oxalate of ammonium; 2 and 3 with chloride of barium; and all presented traces of butyric acid, especially No. 2. All the samples were free from sugar.—(*Pharm. Journ.*, July 8, 1871; from *Proc. Amer. Pharm. Assoc.*, 1870.)

2. *Aconitine, crystallized*.—Great uncertainty has hitherto prevailed in respect to the constituent or constituents on which the active qualities of aconite depend, and four or five substances are known by the name of *aconitine*, which differ most materially in

their properties. Although the possibility of obtaining aconitine in a crystalline state has been demonstrated by Mr. T. Groves, in 1866, it is still described in the B. P., and is usually found in commerce, as an amorphous powder. MM. Gréhant and Duquesnel recently presented to the French Academy of Sciences an important memoir on aconitine, which M. Duquesnel has succeeded in extracting from *aconitum napellus* in the form of rhombic or hexagonal plates. By slightly modifying and simplifying the processes previously employed, M. Duquesnel has obtained a crystalline alkaloid, which he believes to be the veritable active principle of the plant. The best roots yield three or four parts per 1,000 of aconitine. Aconitine, $C_{27}H_{40}NO_{10}$, is a white solid, nearly insoluble in water, but soluble in alcohol, ether, benzine, and chloroform, which is the best solvent. It is not volatile, and is decomposed above $140^{\circ}C$. It is feebly alkaline, but is very soluble in dilute acids, and forms crystallizable salts. It gives the usual re-actions with the tests for the organic alkaloids, especially with the double iodide of mercury and potassium. Aconitine is a powerful poison, and, like curare, destroys the motor power of the nerves, but does not affect the power of producing reflex actions, at least in small doses.—(*Pharm. Journ.*, Jan. 27; Feb. 3 & 17, 1872.)

3. *Iodide of Potassium*.—It is satisfactory to find that, notwithstanding the enormous increase in the price of this salt, it still maintains its purity. The following table of a series of analyses of samples of iodide of potassium, obtained from various sources, is published in *The Practitioner* for January, 1872, and confirms the results of another examination, which were given in the Report for February, 1871. All the samples contained traces only of chloride of sodium; two of them, small traces of iodate; and one only, a small amount of carbonate. No other impurity was found in any of the samples. No. I. White, very large opaque crystals, dry. No. II. White, large opaque crystals, slightly moist. No. III. White, large opaque crystals, slightly moist. No. IV. White, very large opaque crystals, dry, contains a minute trace of iodate. No. V. White, small opaque crystals, slightly moist, contains 1.24 per cent. of carbonate of potassium. No. VI. White, large opaque crystals, dry, traces of iodate:—

No.	Moisture	Iodine	Chlorine	Iodate
I.	1.16	74.15	0.40	None
II.	1.69	73.75	0.35	None
III.	1.90	74.10	0.25	None
IV.	0.66	76.88	0.25	Minute trace
V.	2.20	72.76	0.12	None
VI.	0.83	74.15	0.80	Trace

Pure dry potassium iodide contains 76.50 per cent. of iodine.—
(*Pharm. Journ.*, Jan. 20, 1872.)

4. *Antiseptics, their action and uses in Surgery*.—Mr. C. Roberts, while admitting the value of antiseptics, thinks that the theory of their action adopted by Mr. Lister is open to much doubt, and he believes that a simpler and more satisfactory explanation can be given, based on chemical and clinical experience. Time is an important element in the healing of wounds, and any agent which will simply coagulate the secretions, and so retard their decomposition for a few days, will be as useful an antiseptic as the more pronounced ones, such as carbolic acid, chloride of zinc, or chloride of aluminum. He points out that a wound which does not heal by first intention passes through three stages—(1) the fresh wound; (2) the stage of decomposition; and (3) that of granulation and cicatrisation. Antiseptics are useful, when applied to fresh wounds, by coagulating and fixing the albuminous secretions and tissues, and so postponing the stage of decomposition. Thus more time is given for the wound to heal, and any substance which will coagulate albumen will be as efficacious as carbolic acid for this purpose, and will prove efficient quite independently of the destructive action on organic germs which it may possess. Once a wound has failed to heal, and the putrefactive stage is fairly established, carbolic acid is useless, for it exerts no power over the *products* of putrefaction, and is itself a poisonous and irritating application. Solutions of chloride of zinc answer the double purpose of an antiseptic and disinfectant, and are not so irritant and poisonous as carbolic acid. For a granulating wound antiseptics, as such, are not only unnecessary but injurious. For practical purposes it is not of the least importance whether we exclude the organic or

the chemical and physical elements of the atmosphere, or render the tissues and secretions invulnerable to their attacks. Carbolic acid, no doubt, does both, but, as chloride of zinc and other non-volatile substances possess this latter property and not the former, it is reasonable to conclude that the explanation now given is probably the true one of the action of antiseptics in surgical practice. The credit of the introduction of this method is strictly due to Mr. de Morgan and Dr. Humphry, and Mr. Lister's complicated practice has retarded rather than advanced its development.—(*Lancet*, April 27, 1872.)

Dr. Crace Calvert has examined the relative power of thirty-four substances to prevent the development of protoplasmic and fungus life, and to arrest putrefaction, and finds that they may be grouped as follows:—(1) Those which prevent the generation of fungi and vibrios—viz., cresylic and carbolic acids. (2) Those which prevent the development of vibrios, but not of fungi—*e.g.*, corrosive sublimate, chloride of zinc. (3) Those which prevent fungi, but not vibrios—*e.g.*, sulphate of quinia, pepper. (4) Those which prevent neither one nor the other—*e.g.*, sulphur.

Dr. J. Dougall finds that *chromic acid* is the most powerful germicide known, and is the best preventive of animalcular and fungus life. Contrasted with carbolic acid we have—

CHROMIC ACID.

CARBOLIC ACID.

Free from smell.

Strong affinity for water.

Combines with NH_3 , and decomposes H_2S .

Oxidises organic matter.

A powerful germicide and preventive of fungi.

Coagulates albumen.

Weak affinity for water.

Does not.

A weak germicide and preventive of fungi.

Coagulates albumen = $\frac{1}{10}$ power of chromic acid.

—(*Med. Times and Gaz.*, April 27, 1872.)

5. *Carbolic Acid—action and uses.*—Salkowski (*Pflüger's Arch.*) considering it highly probable that variola depended on a *contagium vivum*, administered carbolic acid in this disease during the epidemic which raged in Königsberg, 1870–71, expecting to find the utmost benefit from its employment. But, after extensive trial, his verdict is, that the acid exerted no perceptible action on

the disease, nor did it shorten its course. In other diseases of a non-infectious nature, however, in which he tried it, decided benefit resulted from its use—viz., in gangrene of the lung, prurigo, and some cases of vomiting. The acid is absorbed unchanged into the blood, and can be detected in it. It is partly excreted by the kidneys, and partly oxidised in the blood into oxalic acid. The dark colour of the urine which occurs after its use is due to some product of its oxidation, but the depth of the colouration is no indication of the amount of acid present, and it is not at all necessary to stop giving the acid when the urine becomes dark. It is better to regulate its administration according to its effect on the digestive functions. As a rule, it should be very freely diluted, and only given in a concentrated form in very exceptional cases.—(*Brit. Med. Jour.*, May 25, 1872.)

6. *Hypodermic Solutions*.—M. Adrian points out that the choice between the pure alkaloid and its salts is not an indifferent one, for their salts vary in strength according to the equivalent of the acid which belongs to them, and also to the amount of water of crystallization which they include. Besides the salts are not always readily soluble in water, the solution often requires to be filtered, and filtration involves loss, and, in every case, fungi form in the solution after a time. The solutions of atropia and codeia are the most prone to change. The method he proposes in order to avoid these objections is as follows:—1°. To use exclusively the pure alkaloids, which are well defined, stable, and of a constant composition. 2°. To take as the vehicle *boiling* distilled water, containing 20 per cent. of pure glycerine. This ensures preservation for a long time. 3°. To employ sulphuric acid, diluted to $\frac{1}{10}$, as the solvent, in preference to other acids. The sulphuric solution keeps better. 4°. To substitute volumetric for gravimetric measurement. 1 part of morphia, atropia, and strychnia respectively, requires $2\frac{1}{2}$ parts by weight of sulphuric acid, diluted to $\frac{1}{10}$, for solution. The solutions should be dilute. (*Rep. de Pharm.*, Mai, 1872.)

7. *Morphia—effects of*.—Hausmann (*Ber. des Naturwiss. Med. Ver.*) has observed, as Nussbaum and Mühe had previously done, that the subcutaneous injection of morphia is sometimes followed by peculiar effects—viz., pain and redness of face, contractions of the muscles of lower jaw, a frequent hammering pulse, dyspnoea, and clonic spasms of the limbs, which speedily pass off and

terminate by sweating. These effects are possibly due to the direct entrance of the morphia into a vein.—(*Brit. Med. Jour.*, February, 1872.) Compare Dr. Handfield Jones' observations noticed in Report, February, 1871.

8. *Apomorphia*.—Siebert, Riegel, and Böhme confirm its being a rapid and effectual emetic, acting in from four to sixteen minutes. The only unpleasant effects occasionally observed were giddiness, cerebral oppression, and precordial anxiety, and even these disappeared so soon as vomiting occurred. No digestive troubles nor local irritation followed on its subcutaneous injection. The most reliable preparation is supplied by Macfarlan and Co., N. Bridge, Edinburgh.—(*Edin. Med. Jour.* March, 1872, from *Berlin Klin-Wochenschr*, No. 5, 1872.)

As Dr. Pierce put it some two years since, apomorphia is pre-eminent in the smallness of the dose required ($\frac{1}{15}$ — $\frac{1}{10}$ gr. hypodermically; $\frac{1}{6}$ — $\frac{1}{4}$ gr. by the mouth), the certainty, rapidity, and completeness of its action, the absence of any serious effects, and its non-irritating character. In these respects it contrasts most favourably with the older emetics, and, when its costliness is reduced, will no doubt come into extended use.

9. *Dover's Powder—Improved Formula*.—An American physician, Dr. Keator, has made many attempts to improve on the nauseous compound, now known as Dover's powder, and recommends the following formula as being much superior:—℞. Morph. sulph. gr. x.; pulv. camph. ʒiii.; pulv. ipecac., ʒi.; cretæ prepar., ʒiii.; pulv. glycyrrh, ʒiii. Mix thoroughly. Dose, the same as pulv. ipecac. co. In 10 grs. of this powder there is $\frac{1}{6}$ gr. of morphia=1 gr. opium.—(*Pharm. Journ.*, July 8, 1871.)

10. *External Applications — Dangers of*. — (α). *Belladonna plaster*.—Dr. J. B. Harrison relates a case occurring in a lady who was poisoned by a belladonna plaster. The symptoms she presented when he saw her were great confusion of mind, spectral illusions, inability to walk steadily; and next morning the throat was sore and dry, the fauces red, and a rash appeared on the body, so that it was thought she was labouring under scarlatina. The pupils were inordinately dilated. On inquiry it came out that the lady some little time previously (date not given) had put a large belladonna plaster over her back,

and that this plaster had occasioned so much irritation that it was removed, not, however, without causing considerable abrasion of the cuticle. The plaster was subsequently reapplied over the abraded surface, and after that the symptoms just mentioned appeared. The lady recovered shortly. Dr. Harrison mentioned another case in his own practice in which extract of belladonna applied to the breasts caused similar symptoms, and refers to several cases in the *Brit. Med. Journ.* for 1853 and 1866, in which symptoms of belladonna poisoning arose from the use of an atropia collyrium, belladonna plaster, and the liniment or extract of belladonna.—(*Brit. Med. Journ.*, May 18, 1872.) Compare cases of poisoning by collyria of atropia quoted in Report, Feb., 1870.

(β). *Emplastrum calefacicus*.—Dr. E. Gray mentions two cases that fell within his own experience, in which severe local inflammation followed in a week or so after the application of an ordinary warming plaster containing 1 part of cantharides in 25. In both cases, also, there was severe febrile constitutional disturbance, accompanied by an erythematous or eczematous rash on the face, neck, and upper part of the trunk. In each case the plaster had been applied to the side of the patient. Dr. Gray has once seen the common pitch plaster vesicate, and remarks, in passing, that the *linimentum crotonis* (B. P.) is too strong for ordinary use, since on three occasions he has observed a *single* inunction of it produce over the whole surface of contact intense erythema of the skin with a profuse crop of vesico-pustules.—(*Practitioner*, April, 1872.)

(γ) *Cantharidism*.—M. Gubler remarks that it is astonishing that a substance which proves so irritating to the tubuli of the kidneys as cantharides should be without effect on the blood-vessels, and he points out that the albumen of the blood plays an important part in preventing the production of the usual effects of this and similar substances by forming combinations with them, so that their powers are rendered latent, and are only manifested when set free by the kidney into a fluid that contains no albumen. If, then, cantharidism be neutralized in the vascular system by the proteids of the blood, it is obvious that it is useless to prolong the application of a blister after the vesicle has risen, since the cantharidin, by its solution in the fibro-albuminous liquid, loses its irritating properties. Hence, also, cantharidin exerts its irritant action on all the emunctories which discharge fluid destitute of albumen, such as the sweat and tears. In M. Gubler's wards, 176

blisters were applied in one year, and 16 instances, more or less marked, of cantharidism were observed, = 1 in 11; but in 4 of these the symptoms were very slight indeed, and in 1 only was there severe hematuria. He does not believe that camphor possesses the slightest power of preventing the injurious effects of cantharides.—(*Practitioner*, April, 1872, from *Bull. Gén. de Thér.*, Dec. 30, 1871.)

11. *Quinine*.—(α). *As a substitute for Ergot*.—It is well known among practical obstetricians that sulphate of quinia has certain effects on the uterus—*e. g.*, if given to young girls is apt to cause painful and scanty menstruation, and so far back as 50 years Torti and Puccinotti had noticed the stimulant action of quinine on the pregnant uterus. Several other authors have also observed abortion to follow the administration of quinine, but little attention was attracted by these observations. Within the last two years Dr. Monteverdi of Cremona has published a memoir in which he claims to establish that quinine possesses definite oxytocic powers. Half an hour after the administration of 3 or 4 gr. doses, slight painless contractions of the uterus are caused, which soon become more prolonged and powerful, with distinct intervals of repose as in natural labour. Quinine appears to him to be preferable to ergot because it exercises no injurious effect on the mother or child, because its action is certain, the contractions it provokes are regular and natural, and it is admissible at any period of pregnancy. Dr. Monteverdi finds quinine serviceable in the metrorrhagia of pregnancy, in amenorrhœa due to torpor of the uterus, and in puerperal fever, and he considers quinine as indicated in all atonic affections of the digestive organs and genito-urinary apparatus. If administered incautiously during pregnancy for other purposes it may induce abortion or premature delivery.—(*Rep. de Pharm.*, Mai, 1872, from *Gaz. Méd.*, Paris.)

M. Bouqué confirms Monteverdi's theory, and gives two interesting cases from his own practice in support of it.—(*Annales de la Soc. de Méd. de Gand*, 1872.)

(β). *Curious effect on the Retina*.—Mr. Vose Solomon reports a curious case with which he met in 1869. A man, aged 30, after taking a teaspoonful of Howard's sulphate of quinine for the relief of severe "tic," was soon affected with vertigo, chilliness, a sense of sickness, and *failure of sight*. When examined by Mr. Solomon nine days after, it was found that he could read brilliant

type (Jaeger's No. I.), a single letter only at a time, so contracted was his field of vision. There was complete anæsthesia of the visual field of the right eye, except at a point opposite the yellow spot, and in the left eye the temporal field was good, the nasal reduced to two inches. In all other respects the eyes were normal. Bromide of potassium was prescribed, and a small blister to the nape of the neck. The ophthalmic symptoms gradually subsided, but his brain remained irritable, and in 1870 the patient suffered from several epileptic seizures, but in December, 1871, he declared himself to be in perfect health.—(*Birmingham Med. Review.*)

(γ). *Effect on Temperature.*—In the Homerton Fever Hospital quinine has been given to children with enteric fever for the purpose of depressing the temperature and with remarkable results. In two cases it was shown that a fall in temperature had repeatedly taken place immediately after the administration of 3 gr. doses of quinine every 4 hours, and at no time was cinchonism induced. For example, one case, a girl aged 7, was admitted on the evening of the 9th day of enteric fever; $T = 105^{\circ}$. Quinine was at once given: immediately there was a fall in temperature, and on the evening of the 11th day, $T = 97^{\circ}$. Quinine was discontinued, and on the evening of the 12th day, $T = 105^{\circ}$. Quinine again given, and by the 14th day, $T = 97^{\circ}$. The quinine was much diminished, and by the 15th day, $T = 103^{\circ}$; quinine repeated, and on 16th day, $T = 98$, and next day, $= 97.5^{\circ}$. Quinine again discontinued, and on the 19th evening, $T = 101^{\circ}$. Quinine recommenced, and on 20th day, $T = 98.5^{\circ}$, and on 21st day, $= 98^{\circ}$, after which no further rise took place. The quinine was finally discontinued on the 22nd day.—(*Lancet*, April 13, 1872.)

(δ). *Determination in Urine.*—Quinine is eliminated in the urine, to which it communicates a bitter taste, but cannot be detected in it unless the patient has taken at least 10–20 grains. M. Landerer (*Schweiz. Wochens. für Pharm.*, 1868) recommends the following simple method for the determination of quinine in urine: Add ammonia; the precipitate contains the quinine along with lime and magnesia. Dissolve out the quinine by alcohol. Biniodide of potassium is a good re-agent for detecting and separating quinine in urine.—(*Rev. de Thér. Med. Chir.*, 1870.)

12. *Hydrocyanic Acid—action of.*—Dr. Amory has performed some experiments on this subject which lead him to conclude—1. That artificial respiration does not prevent the intoxication of

hydrocyanic acid, nor materially assist in its elimination. 2. Artificial respiration will prevent the occurrence of convulsions, or of muscular spasm. 3. Muscular irritability and nervous conductivity are not impaired by prussic acid poisoning in cases where artificial respiration has been maintained, until after the cessation of cardiac pulsations. 4. The static congestion of the pulmonary tissue is either a *post-mortem* appearance, or is due to asphyxia. 5. Death by prussic acid is due to some other cause besides asphyxia; possibly to a state of blood-poisoning. 6. The cerebral and spinal apoplexy found *post-mortem* is probably referable to the asphyxia secondarily induced, and not to the direct action of this poison.—(*Practitioner*, April, 1872.)

13. *Alcohol—elimination of*.—Dr. Dupré, continuing his investigations, points out now that a substance is found in the urine, after six weeks of total abstinence, and even in that of a teetotaller, which gives the re-actions ordinarily employed for the detection of small quantities of alcohol, and a volatile product is obtained which possesses the odour and chemical properties of acetic acid. This volatile substance, whatever it may be, also answers to the iodoform test for alcohol, and it is to be remembered, that M. Lieben, to whom we owe the iodoform test, has already detected the presence of a substance in human urine, as well as in that of animals, which yielded iodoform, and yet does not appear to be alcohol. There can be no doubt that this substance has sometimes been taken for alcohol, and has thus led some experimenters to the belief that the elimination of alcohol continued much longer than it really did.—(*Practitioner*, April, 1872.) Compare Parkes and Wollowicz's experiments on the action of alcohol.—(*Report*, Feb., 1872.)

14. *Phosphorus—(α)*.—*Absorption of*.—MM. Husemann and Marmé have concluded, from their researches, that phosphorus, in the uncombined condition, is absorbed into the system, for it can be detected in the liver of carnivora and herbivora by Mitscherlich's process in a few hours after the injection of a very small dose of phosphorized oil into the stomach.—(*Lancet*, Jan. 12, 1867.) Mialhe confirms this view, and believes that the absorption of phosphorus is due, not to the chemical action of the alkalies in the intestinal juice, but to the fatty matters in the alimentary substances. Hence, in cases of poisoning, it is indispensable to

prohibit any food or medicine containing fatty matter.—(*Union Med.*, 1868.)

(β). *Poisoning by.*—Voit and Bauer find that fatty degeneration of the organs is produced by phosphorus, even in animals deprived of food, and extremely emaciated. The phosphorus diminished both the O taken and the CO₂ given off, but increased the urea excreted. Voit considers that the more rapid degeneration of the liver in acute atrophy is the chief difference between this disease and phosphorus-poisoning. Leucine and tyrosine are among the first products of decomposition of albumen. At first the fat is formed from the store of circulating albumen; afterwards, as in fasting, from the more firmly combined albumen of the organs; and lastly from that albumen which is essential to the constitution of the cells.—(*Brit. Med. Journ.*, May 11, 1872.)

Dr. Vetter, of Dresden, states that acute poisoning sometimes results from phosphorus being prescribed medicinally in too large doses, and he believes that it should not be ordered in the pure state at all. Intense inflammation of the stomach is not a characteristic of phosphorus-poisoning, but ecchymoses of serous membranes are common. The *treatment* he recommends is, first, an emetic of sulphate of copper (Bamberger), and then oil of turpentine (Andant), following this up, in a day or two, by a teaspoonful of magnesia, now and then.—(*Practitioner*, April, 1872; from *Med. Chir. Rundschau*, Feb., 1872.) In the previous Reports for 1869, 1870, and 1871, the evidence for and against the turpentine treatment of phosphorus-poisoning was given, and the mass of testimony in its favour is now very strong. Köhler reports another striking case of its value. A woman, aged 43, took, within five days, a decoction of the heads of 200 lucifer matches. The usual symptoms soon followed; and on the fifth day, when M. Köhler saw her, she was in a state of horrible suffering, and suffered from suppression of urine, and clonic convulsions of the muscles of the trunk and limbs. Pulse 120, small; respirations 28; temperature 37°, 6 C. Small doses of an ethereal solution of oil of turpentine were given every half hour, and continued for two days. Gradual improvement took place, and in a few days the patient was quite well. The urine was very acid, non-albuminous, and the proportion of phosphates was not increased.—(*Rep. de Pharm.*, November, 1871; from *Berlin Klin. Wochensch.* 1870.) Eulenburg and Vohl propose *charcoal*, instead of turpentine, as an antidote to phosphorus.

(γ). Since the *administration* of phosphorus is attracting some attention it may be well to refer to two or three methods of prescribing it which have been proposed. According to Mialhe, phosphorus is best administered for therapeutic purposes dissolved in a fatty body, which prevents it undergoing change, and insures its complete absorption, without the inconveniences which attend its solution in ether or chloroform. The capsules of phosphorated oil, put up by Messrs. Graham & Co., afford a very convenient and elegant means of administering the drug internally. Dr. Radcliffe's formula for phosphorus pills is—Phosphorus 6 grs., suet 600 grs. Melt the suet in a stoppered bottle, put in the phosphorus, and, when liquid, agitate the mixture till it becomes solid; roll it into 3 gr. pills, and cover with gelatin. Each pill will contain $\frac{1}{50}$ grs. of phosphorus.—(*Pharm. Journ.*, June, 1866.) M. de Mussy proposes the phosphide of zinc as agreeing better with the stomach than any other preparation of phosphorus. Dose $\frac{1}{2}$ gr. in pill. It is prepared by projecting the vapour of phosphorus on boiling zinc in dry hydrogen gas.

15. *Absorption of Insoluble Substances*.—In the last Report (Art. 9), the experiments of Neumann on the absorption of metallic mercury through the skin were briefly noticed. Dr. Auspitz concludes from his experiments:—1. That in mammals, insoluble matter (starch granules) starting from the peritoneum and subcutaneous tissue is able to reach the lungs, and through these organs to enter the general circulation. 2. That these granules first pass through the lymphatic system. That they are taken up exclusively in this way is not proved. 3. That the epidermis always presents a considerable, though only relative and not absolute, obstruction to absorption from the cutaneous surface. 4. That absorption is essentially promoted by the mediation of fat. Hence, probably, what is true of fat and of starch-flour may also be asserted of other insoluble bodies of finer division, and, therefore, less permanence of form than the starch-flour.—(*Edinb. Med. Journ.*, March, 1872.)

16. *Calomel, digestion of*.—Mr. Tuson has made some interesting experiments initiative of an inquiry into the effect of the gastric juice upon insoluble mineral substances. Experiment I. A mixture of pure calomel and distilled water, containing 2 per cent. of hydrochloric acid, was placed in one vessel. Experiment II. In another vessel a mixture of calomel, pepsine (Bullock and Reynold's), and

distilled water. Experiment III. In another, a mixture of calomel, pepsine, and distilled water, containing 2 per cent. of hydrochloric acid. These mixtures were kept at 38° C. (100.2° F.) for 24 hours, and occasionally stirred or shaken. They were then filtered and the filtrates saturated with sulphuretted hydrogen. The filtrates from I. and II. remained unaltered, but that from III. gave a black precipitate of Hg S. These simple experiments, which have been repeated with success by Dr. Symes Thompson, therefore, show that neither dilute H Cl (2 per cent.), nor pepsine alone is capable of dissolving calomel, but that when these agents are mixed, they do affect its solution, and consequently, that the digestion of calomel, so far as its solution in artificial gastric juice is concerned, is brought about under the same conditions as that of the albumenoids. These experiments serve also to remove much of the difficulty previously felt of accounting for the effect of a salt insoluble in acid, and is of value as showing why calomel does not produce its characteristic effects in cholera, and other conditions in which the digestive powers are in abeyance, or where the active ingredients of the gastric juice are wanting.—(*Med. Times and Gazette*, May 4th, 1872; *Pharm. Journ.*, Dec. 23rd, 1871.)

17. *Oleates of Mercury and Morphia*.—As local medicated applications in the treatment of *persistent* inflammation, Mr. J. Marshall recommends oleate of mercury (containing 5, 10, or 20 per cent. of oxide of mercury) as a most advantageous substitute for ordinary mercurial liniments or ointments. It is more cleanly, more easily applied, and much more readily absorbed. It should not be rubbed in, but merely applied with a brush or spread lightly over the part with one finger. Combination with a little morphia (1 gr. to 3i. of the oleate), relieves pain and allays nervous irritation. Illustrative cases are given, and numerous instances of the utility of these preparations are mentioned, for which we refer to the original paper in *Lancet*, May 25, 1872.

18. *Santonin, serious effects from*.—A lady gave to her child, not 2 years old, 7 c. grm. (1.05) of santonin in the morning, fasting. The child was uncomfortable through the day, could not urinate, vomited in the night, and next morning had cramps and convulsions, followed by a heavy sleep and abundant perspiration. Under suitable treatment by M. Andant, the child soon recovered, but remained for some time weak, and of an icteroid tint. The urine

on the second day was of a deep red.—(*Rep. de Pharm.*, Jan., 1872, from *Bull de Thér.*) Could the santonin have been adulterated?

19. *Eucalyptus Globulus*.—This gigantic tree, the blue gum-tree of Australia, has attracted considerable attention lately as an antiperiodic, and in M. Gubler's opinion it will probably prove worthy of being ranked with cinchona itself. From its febrifuge qualities in marsh and other fevers it has gained the popular name of "fever-tree," and Dr. Lorinser, of Vienna, reports that he employed it in intermittent fever with success. Gubler and Carlotti have also strongly recommended it. Professor Maclean, of Netley, says that he knows of no remedy, except perhaps morphia, hypodermically so efficacious in allaying pain, calming irritation, and procuring sleep, in cases of chest aneurism involving pressure on the vagus nerve or its branches, and in cardiac asthma, as the eucalyptus. Vanquelin and Leiciani have analysed it and have found, besides an essential camphorated oil, an extract resembling cinchona-resin, which yielded a basic substance forming crystalline salts, and, like quinia, giving a green colour with chlorine and ammonia. Preparations from the leaves have been introduced by Messrs. Savory and Moore. The dose of the tincture and fluid extract is ʒi. in water, two or three times a day.—(*Lancet*, April 20, 1872.)

SPECIAL THERAPEUTICS.

20. *Atropia*—uses in *Ophthalmic Surgery*.—Mr. Ernest Hart, after extensive experience, has been led to believe that there is a numerous class of cases in which mischief arises from slowness to employ atropia locally. He considers that we could, in the treatment of ophthalmic diseases, better afford to dispense with all other drugs, lotions, and applications than with this one *topical* medicament, and, excepting some obvious cases—*e.g.*, peripheral wounds of cornea with hernia of iris—there is scarcely one absolute contra-indication, save in the existing oval dilatation of the iris in glaucoma. But, in all cases of iritis, in contusions and injuries of the eye, the local instillation of a solution of atropia is the most precious of therapeutic means. It is as safe a rule in ophthalmic practice to use an atropia drop when in doubt as in whist to play a trump. The most useful formula is:—Neutral sulphate of atropia, gr. ii.; glycerin, 5 drops; distilled water, 1 ounce; one drop as required; or, the convenient and reliable atropised gelatin discs

may be used. He also points out that our line of treatment now is much simplified, and that, so far as regards local and surgical means, with a little cotton-wool, alum, and glycerin, hot and cold water, atropia, and a pocket case of instruments, we can treat, with a previously unattainable success, nearly the whole range of ophthalmic cases. In the average run of ophthalmic diseases, whether for the treatment of a large proportion of the inflammatory disorders of the eye, by securing anæsthesia and physiological rest, or, in the diagnosis of optical defects, atropia is of ever-recurring use.—(*Brit. Med. Journ.*, April 27, 1872.)

21. *Ergotin subcutaneously in varix.*—Dr. Paul Vogt, of Greifswald, led by the results attained by Langenbeck, Schneider, and Dutoit in aneurism, tried this remedy in varix of the lower limbs. A man, aged sixty, who had for years extensive varices of the leg, was treated on this method by subcutaneous injection of 12 c. grm. of ergotin (dissolved in equal weights of spirit and glycerin) at the proximal end of the varix, and with complete success.—(*Brit. Med. Journ.*, April 27, 1872; from *Berlin Klin. Wochenschr.*, March, 1872.)

22. *Guarana in sick headache.*—Dr. Wilks calls attention to the use of this drug as so encouraging in the treatment of sick headache, and asks for further information. His attention was called to it about two years since by Mr. Helmcken, of British Columbia, and more recently, by Dr. Wood, of Montreal.—(*Brit. Med. Journ.*, April 20, 1872.)

Guarana or paullinia is a paste prepared from the seeds of a Brazilian plant, *paullinia sorbilis*, in a manner somewhat similar to chocolate. It possesses a peculiar odour, a bitter astringent taste, and contains no inconsiderable amount of caffein. A full account of its properties and uses will be found in Guibert's *Nouveaux Médicaments*, 2^{me}. edit., p. 17.

23. *Chloral, Contra-indications to.*—Liebreich points out the following:—1°. Extended destructive affections of the mucous membrane of the digestive tract. 2°. Arthritic conditions are unfavourable, unless the blood be first rendered alkaline. 3°. In typhus fever, if given at all, it should be in small doses. 4°. In affections of the circulating apparatus, particularly in serious valvular and other troubles of the heart, small doses should be used.

5°. Hysteria is often a counter-indication, the condition of excitement being sometimes increased. 6°. Jaundice has been regarded as a contra-indication, but this is doubtful. It should never be given in solution stronger than 1 part to 5. It may be mixed in beer, wine, beef-tea, or mucilage; syrup of orange-peel is preferable. The so-called syrups of chloral are solutions in glycerine with sugar. Habitual use does not call for increase of dose, and long-continued use does not impair the general health.—(*Med. Press and Circ.*, Feb. 21, 1872, from *Gaz. Hebdom.*)

Strychnia Poisoning treated by Chloral.—Dr. Angus Macdonald had prescribed for a patient five drops three times a day of liquor strychnia (B.P.), which were continued for one or two months without any disagreeable results. On the morning of January 30, 1872, he took his usual dose before breakfast, but may possibly have taken two or three drops in excess. He left home immediately after breakfast without feeling in any way ill, but when about a quarter of a mile from his home, he felt giddy, and experienced a tendency to stagger, and getting gradually worse, he drove to Dr. Macdonald's house, and arrived there three-quarters of an hour after swallowing the dose. At that time his lower limbs were rigidly extended, as also the neck and trunk, so that he was unable to get out of the cab, and was with difficulty removed. The spasms recurred at intervals of less than a minute, and were attended with severe pain. Chloroform was at once administered, but gave only temporary relief, and one hour after swallowing the poison he was given 30 grs. of chloral, and in a few minutes 20 grs. more. Shortly after this the spasms diminished rapidly, both in frequency and severity, until, about one hour and a half after taking the strychnia, they ceased altogether, and after a short sleep he felt quite well, except for a certain amount of giddiness. The case is of interest as showing the mitigating effect of chloral on strychnia, even though the dose of the latter was far from fatal, and it appears to illustrate the cumulative property of strychnia.—(*Edin. Med. Jour.*, April, 1872.)

Another writer, the author of a prize essay (*Lyon. Medic.*, 1872), finds that the actions of chloral and strychnia are antagonistic, but the action of strychnia is more powerful, so that an animal put asleep by chloral can be awakened by strychnia, but, once under the influence of strychnia, it cannot be put to sleep by chloral. The actions of calabar bean and chloral are also antagonistic, but that of chloral is more powerful (*Brit. Med. Jour.*, May 11, 1872).

These conclusions agree in the main with those attained by previous experimenters.

Eruption following on use of Chloral.—Several cases of the occurrence of an urticarious eruption after moderate doses of chloral have been published, and Dr. Burman records two cases occurring in the Devon Lunatic Asylum in which a bright red scarlatinaform eruption came out over the whole body, attended with fever and sore throat, and followed by desquamation. In each case there was a relapse of the rash and febrile symptoms, and there does not appear that there was any reason to suspect the existence of true scarlatina. One case was a woman, aged thirty, of feeble bodily health, and suffering from acute melancholia. The other case was an imbecile woman, aged twenty, who was ordered 20 gr. doses of chloral.—(*Lancet*, March 16, 1872.)

Chloral compared with Hyoscyamus and Bromide of Potassium.—Dr. J. A. Campbell has tested these medicines, in single doses, a large number of times, on fourteen cases of maniacal excitement, and concludes from his observations:—1°. That both chloral and tinct. hyoscyami are sure sedatives to maniacal excitement. 2°. That chloral is the more sure hypnotic. 3°. That chloral acts more quickly than tinct. hyoscyami. 4°. That though bromide of potassium in 60–90 gr. doses is a sedative to maniacal excitement, and, to a certain extent, hypnotic, it cannot control severe cases. 5°. That 3ii. tinct. hyos. = nearly 30 grs. of chloral.—(*Practitioner*, April, 1872, from *Jour. Mental Science*, January.)

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

Saturday, 18th May, 1872.

LOMBE ATTHILL, M.D., Honorary Secretary.

The President, DR. KIDD, in the Chair.

THE PRESIDENT said : I am sure you will all feel that we meet to-night under circumstances of very great depression. We have experienced, since our last meeting, a loss in regard to which words entirely fail me to express my feelings. One of our most active, most enthusiastic, and energetic members—one who, of all others, was perhaps most liked and most worthy of being liked, has departed from amongst us. It would not be right that our meeting should be passed over without taking notice of this event ; and the members of the Council have agreed to a resolution, which Dr. M'Clintock will now have the goodness to propose to the Society.

Dr. M'CLINTOCK.—I may with truth, Sir, say, this is a melancholy pleasure and satisfaction that has devolved upon me, to submit a resolution to this meeting, which I am sure will meet with the entire approval of all the members present. As you are aware what the purport of the resolution is, I feel that it would almost detract from its force to preface it by any observations with regard to the individual to whom it relates. It may not, however, be superfluous, for the information of the younger members of the Society, to mention that Dr. Beatty was one of our oldest members. I believe he was coeval with the institution of the Society, or joined it very soon afterwards ; and throughout the whole of that period of over thirty-five years, he had been the constant, unvarying friend of the Society. In sunshine and in shade, in adversity and in prosperity, at all times, and under all circumstances, he was ever ready to assist us with his pen, with his purse, with his advice, and with his presence. During the time the reconstruction of the Society took place, some years ago, Dr. Beatty took an active interest in the movement

which tended so much to the enlargement and improvement of the Society. You are aware that Dr. Beatty was a member of a great many societies in this city; societies of a convivial, social, literary, and scientific character. In every one of them he was respected and beloved; but I need hardly remark to you, that the Obstetric Society was the one which he took the greatest pleasure in attending, and from its meetings he was never absent, except from unavoidable causes. I shall not add more now; but I hope that on some fitting occasion we may be favoured with the life of a man in many respects so remarkable, and so deserving of being remembered. The resolution I beg to propose is as follows:—
“That we desire to record our deep regret at the death of Dr. Thomas Edward Beatty, whereby this Society has lost one of its oldest and most active supporters, as well as one of its most distinguished members, whose social and intellectual qualities, in addition to his professional attainments, had justly gained for him the sincere esteem and respect, not alone of his brethren, but also of a large circle of friends; and furthermore, that the Secretary of this Society be requested most respectfully to convey to Mrs. Beatty and family the expression of our united and heartfelt sympathy on this sad and trying occasion.”

Dr. DENHAM.—I cannot say I rise with pleasure to second this resolution. It is with a feeling of deep depression and sadness I do so, because we have lost one of our most valuable and valued friends. It would only detract from the resolution if I were to endeavour to add force to it by dwelling on the merits of our departed friend. I trust, however, such occurrences will tend to unite us all more closely together, and will conduce, during the short time that some of us may be left in this sphere of usefulness, to promote a feeling of brotherly love, and stimulate us still more to labour to advance the interests of our profession and the happiness of mankind.

Dr. STEWART, as an old schoolfellow of the late Dr. Beatty, could not let the occasion pass without bearing testimony to his great kindness and amiability of disposition, his good sense, and his high professional abilities.

The resolution was then put from the chair, was received in silence, and passed unanimously.

On Fibrous Tumours of the Uterus. By GEORGE H. KIDD, M.D., Fellow and Member of Council Royal College of Surgeons in Ireland; Hon. Fellow of the London Obstetrical Society; Corresponding Member of the Gynæcological Society of Boston; President of the Dublin Obstetrical Society; Obstetric Surgeon to the Coombe Lying-in Hospital.

DR. KIDD having left the chair, and Dr. Byrne, Vice-President, having taken it, Dr. Kidd said:—

I regret that I am obliged to begin my communication to-night with an apology. I have certainly devoted considerable thought to it, but I have been unable to write it, and I must throw myself on your kindness to allow me to make some disjointed remarks upon the subject I propose to bring before you. In speaking of fibrous tumours of the uterus I have no intention of entering into the literature of the subject, or discussing the pathology and etiology of these growths. I mean simply to bring before you some account of my own personal experience in reference to them, and to do so as briefly as possible. You all know that in the books fibrous tumours are spoken of as of three classes. In my remarks I shall follow this order. We have fibrous tumours found on the outer surface of the uterus, or sub-peritoneal tumours. We have them found in the substance of the uterus, or intramural tumours, and we have them found in the interior of the uterus, or intra-uterine tumours. The sub-peritoneal tumours are, as we know, the largest, and are very frequently numerous. There are cases recorded of tumours of this kind 70lbs. in weight. It has never been my lot to meet with a tumour of that size. Once I saw one with Dr. Denham upwards of 40lbs. in weight, and it presented another peculiar character of these tumours—the whole mass was formed of an agglomeration of tumours. The chief importance of sub-peritoneal tumours arises from their size and their position. The remark has been made by Cruveilhier that the sub-peritoneal tumour is not accompanied by hæmorrhage; but a doubt has been thrown upon the absolute correctness of this statement. At present I am not aware that we have had an actual dissection of a case where a sub-peritoneal tumour was accompanied with hæmorrhage. The specimen I now lay before you seems to me one of very peculiar interest, and well calculated to throw light on this question. It is a uterus having on its outer surface a very small specimen of a sub-peritoneal tumour, not larger than a large-sized filbert; but there is a soft mucous polypus growing from the inner surface, at the fundus, and projecting into the cavity of the uterus, and there is also at the os-internum a number of cystic polypi. It was a case where we had a sub-peritoneal

tumour combined with intra-uterine polypi, in which the fibrous tumour might have been recognized during life and the polypi have remained undetected. I can very well imagine that in such a case as this you might have a sub-peritoneal tumour complicated with hæmorrhage due to the polypus and not to the tumour. This, then, would afford satisfactory explanation for the occurrence of hæmorrhage in connexion with sub-peritoneal tumours. I have no history of that case. It was a specimen brought to the Pathological Society with others, taken out of the same body; the other specimens were those that attracted attention, but the gentleman who exhibited them was so good as to give me the specimen now before you. I could not obtain any history of the uterine symptoms during life. The chief importance, however, of these sub-peritoneal tumours is from the mechanical inconvenience they cause. These tumours, when they grow from the upper part of the uterus and rise into the abdomen, are of little importance; but they sometimes grow from the lower part, and are pressed down into the true pelvis, where they are surrounded by bone, and may give rise to very serious inconvenience indeed. I have notes of a very remarkable tumour of this kind that I had the opportunity of observing from the beginning to the end. It was the case of an unmarried lady who consulted me so long ago as 1852 for a tumour she had discovered in the abdomen. It was then about the size of a goose's egg. The late Dr. Charles Johnson saw the case with me. A second tumour developed itself as I watched the progress of the case. The tumour increased, and the abdomen became enlarged, apparently occupied by one mass, but two tumours could still be traced. In 1859 the abdomen was as large as in the seventh or eighth month of pregnancy; and at this period a portion of the tumour could be felt by a finger in the vagina lying behind the uterus and pushing that organ upwards and forwards. Attention was drawn to it by the patient herself, who found a greatly increasing difficulty in using an enema.

On examination, at this time, I found a tumour of stony hardness; and on passing a sound into the uterus, I found this organ of the normal length and, as I have already mentioned, pushed upwards and forwards. The tumour behind the uterus increased in size so much, that there was a difficulty in getting the bowels to act, and at each menstrual period there was great pain in the tumour, and she suffered from great sickness of stomach. At no time was there uterine hæmorrhage.

In 1861, Dr. Churchill saw this lady. The lower tumour had now increased, so as to throw the uterus quite out of reach of the finger. The whole of the upper part of the pelvis was occupied by the large hard solid mass, so tightly wedged into the pelvis as to be quite immovable; and the tumour rose in the abdomen to midway between the umbilicus

and xiphoid cartilage. The constipated bowels and difficulty of defecation continued; the sickness of stomach was not confined to the menstrual periods; menstruation was regular as to time and quantity, but very painful. But the greatest source of complaint now was excessive pain along the course of the great sciatic nerve of the right side. Dr. Churchill suggested the use of an air-pessary strongly inflated, to bear the pressure of the tumour off the sacral plexus of nerves, and to gradually raise the tumour off the rectum. This was used for some months, and afforded considerable relief. The lady now went to the County Wexford, and was under the care of Dr. Isdell, who wrote to me that she had a fibrous tumour so completely blocking up the pelvis, that he thought defecation would soon be impossible.

This is a very marked example of the mechanical inconvenience arising from this class of tumours. The pain in the sciatic nerve was intense, and it was something frightful to witness her agony arising from it. The subsequent history of the case is still more remarkable and more interesting.

At the end of 1863, menstruation became irregular, and she occasionally passed "flesh-like masses," which she believed to have been coagula, as I presume they were. Menstruation now ceased, and the abdomen gradually diminished in size; the pain and sickness of stomach ceased; and the abdominal tumour disappeared without its going being in any way noticed, except from the diminution of size, which was so gradual, as to be only known by the result, and not by the process. The general health was greatly improved.

On 26th of June, 1867, I saw this lady, and examined her carefully. I could not detect any tumour in the abdomen. On passing my finger into the vagina, I found a firm round tumour in Douglas' space—movable, hard, but yielding slightly to the finger on pressure. The uterus was easily felt, pushed a little forwards by the tumour, but nearly in its normal position. The vaginal portion of the cervix and the os were quite defined. The uterus moved freely, and independently of the tumour. The patient had not known of the existence of this part of the tumour, and believed the whole had disappeared.

This was one of the most remarkable cases I have ever known of the disappearance of a fibrous tumour. I saw the case from its beginning, and the lady is still alive and still under my observation, and is herself not aware of the existence of any tumour, and I believe there is now none at all.

The pressure here was upon the rectum and the sacral plexus of nerves, and the pessary afforded the patient great relief. In other instances the pressure is upon the urethra and upon the neck of the bladder.

The following case is an example of this:—A. D., an unmarried woman between forty and fifty years of age, applied as an out-patient at the Coombe Hospital, in January, 1871. She stated that during the last fourteen months she had frequently suffered from retention of urine, and was obliged to have a catheter passed five times. On examination, a fibrous tumour was found growing from the posterior wall of the uterus, lying in the concavity of the sacrum, and forcing the uterus against the neck of the bladder. The tumour was fixed in this position. I tried first to move it with my hand by placing my finger in the vagina and pressing it up. I got the woman on her knees and elbows for this purpose, but could not move it. I then adopted a method I have on previous occasions described to this society. I placed one of Barnes' India-rubber bags in the rectum and forced water into it by means of a syringe. As I forced the water into the bag it gradually lifted the tumour out of the pelvis, got it up above the brim, and allowed the neck of the uterus to come down into its normal position. I then removed the bag, and placed in the vagina one of Hodge's pessaries. The woman complained, next day, that she had a tumour in the abdomen, which she had not had before. I have seen this woman frequently, the last time I saw her being the 29th of January, this year—a year and a few days since I lifted the tumour. It was still in the abdomen, had not returned into the pelvis, and she never had any further difficulty in passing water.

I have seen a very considerable number of cases of this kind. They illustrate a remarkable circumstance, common to many other forms of tumour besides those under consideration—that the inconvenience arising from them, although mechanical, is intermittent. This woman suffered from retention of urine, but by means of baths she got relief, except on five occasions when the catheter had to be used. I think it is a remark of Dr. Charles Johnson, that a permanent obstruction of the rectum has never been recorded as arising from the pressure of a fibrous tumour, but you may have at intervals serious obstruction in the rectum. The same takes place at the neck of the bladder. It seems to me that there are three circumstances that contribute to this. I think these tumours often become increased at the menstrual period. The first case, where pain in the sciatic nerve was always aggravated at the menstrual period, is a case of that kind. Another circumstance influencing them is the condition of the bowels. Where you have the bowels distended, the tumours become more prominent, or may be forced lower down into the pelvis, and in that way pressed much more on the lower parts. These tumours are also liable to become œdematous by being in some degree infiltrated with serum.

The increase of pressure by flatulent distention of the bowels was very forcibly brought under my observation in a case I saw with

Dr. Gordon and the late Dr. Beatty. It was not, however, I believe, a fibrous tumour. In Dr. Gordon's opinion it was a case of ovarian tumour; but, as it illustrates the point to which I refer, I may, perhaps, be allowed to speak of it. The case was that of a lady who had been under Dr. Gordon's observation for a considerable time for a tumour occupying the left and lower part of the abdomen. In some way the bowels became obstructed, and she was for a very considerable period unable to pass anything from them. The abdomen became enormously distended, and we had all the symptoms of intestinal obstruction. The case was one in which ovariectomy or incision for exploration was absolutely impracticable in our opinion. We felt that if we once made an incision into the abdomen, and the intestines escaped, we never should be able to get them back again, so great was their flatulent distention. After trying many means to obtain relief, we punctured the bowels. We passed a fine trocar into the transverse arch of the colon. A great escape of gas took place. The candle having been brought near, the gas took fire, and a blue flame was formed two or three inches in length. The lady suffered no inconvenience from the tapping. The next day the bowels acted freely, and continued to act for some time, until she gradually sank and died from other causes. It shows that flatulent distention of the bowels may cause a tumour to press on neighbouring organs.

The next point to which I desire to call your attention is the disappearance of fibrous tumours. In the case of the sub-peritoneal tumour that I have related, I believe the tumour disappeared by absorption. There was no escape of anything that could account for its disappearance. It is doubted whether these fibrous tumours are capable of being absorbed, but I believe this case fully proves it. Another change these tumours undergo is that of calcification, especially after menstruation has ceased, when they sometimes become converted into a cretaceous mass. Reasoning on this, the use of chloride of calcium was suggested, and Dr. M'Clintock speaks highly of it. The practice is one I have been in the habit of following for a long time. I do not know that I can give you an absolute proof of the diminution of tumours from the use of chloride of calcium, but the patients express themselves very much relieved by the use of it, and it has given more comfort than any other treatment I have seen adopted.

The next class of tumours are the intra-mural tumours. I have not much experience of my own to record with regard to intra-mural tumours. I have seen many of them, but I do not know that I have anything worthy of detaining the Society to say with regard to them. In my experience they are the least amenable to treatment, while they are the most serious, perhaps, to the patient. They cause sometimes great

hæmorrhage; at other times there is no hæmorrhage from them. Of this I had a remarkable example—a case of intra-mural tumour, where I had an opportunity of dissecting the patient, and where the presence of the tumour was fully established, and yet there was no history of hæmorrhage, even though the cavity of the uterus was much enlarged. In other cases not nearly of that size, and where the cavity of the uterus was not so much enlarged, the hæmorrhage was excessive. I believe the difference is owing to this—when the tumour is near the mucous surface, and presses on it, you have hæmorrhage; when it is in the substance of the wall of the uterus, and grows towards the outer surface, there will probably be no hæmorrhage. The cavity of the uterus may be enlarged in both cases, but not so much in the latter. When you pass a sound into the uterus you find it double or treble its normal length, and sometimes very tortuous too. Many methods have been suggested for the treatment of these cases—incision into the capsule of the tumour, gouging, incision of the neck of the uterus, &c.

I have never seen a case where it seemed desirable to adopt these methods of treatment; and, indeed, they seem more likely to be useful in cases of intra-uterine tumours, which we now know can be removed. In some cases I have dilated the uterus, and applied nitric acid. This is often beneficial; the tumour is checked in its growth, and the hæmorrhage very much lessened. After a time it may return, and I have in such cases applied the nitric acid a second, and even a third time. Nitrate of silver, if introduced into the uterus and left there, will check the hæmorrhage; and the injection of perchloride of iron has also been used for the same purpose. That, in my experience, is the least useful and the most dangerous treatment. I have seen very serious results from perchloride of iron introduced for these tumours. The last case in which I tried it proved fatal. The woman got a low form of metritis and died. Nitric acid does not produce nearly the same amount of irritation, and it is more beneficial. The palliative treatment is of great importance in these cases, and the best form of it is plugging.

I wish to stop here to make a few remarks on plugging. It has become the fashion of late to plug with cotton, and I have fallen into the way with others. Cotton possesses some very great advantages both for introduction and removal. You take a sheet of French wadding, cut a long stripe off it, and pack it carefully into the vagina. It is not, in my experience, an efficient plug. It is a peculiarity of cotton, that as you wet it, it becomes contracted and occupies a smaller space than it did at first. When placed in the vagina it becomes wet with blood, contracts greatly, and leaves the vagina free enough to allow a discharge of blood. This may be obviated to a certain extent by wetting the cotton before

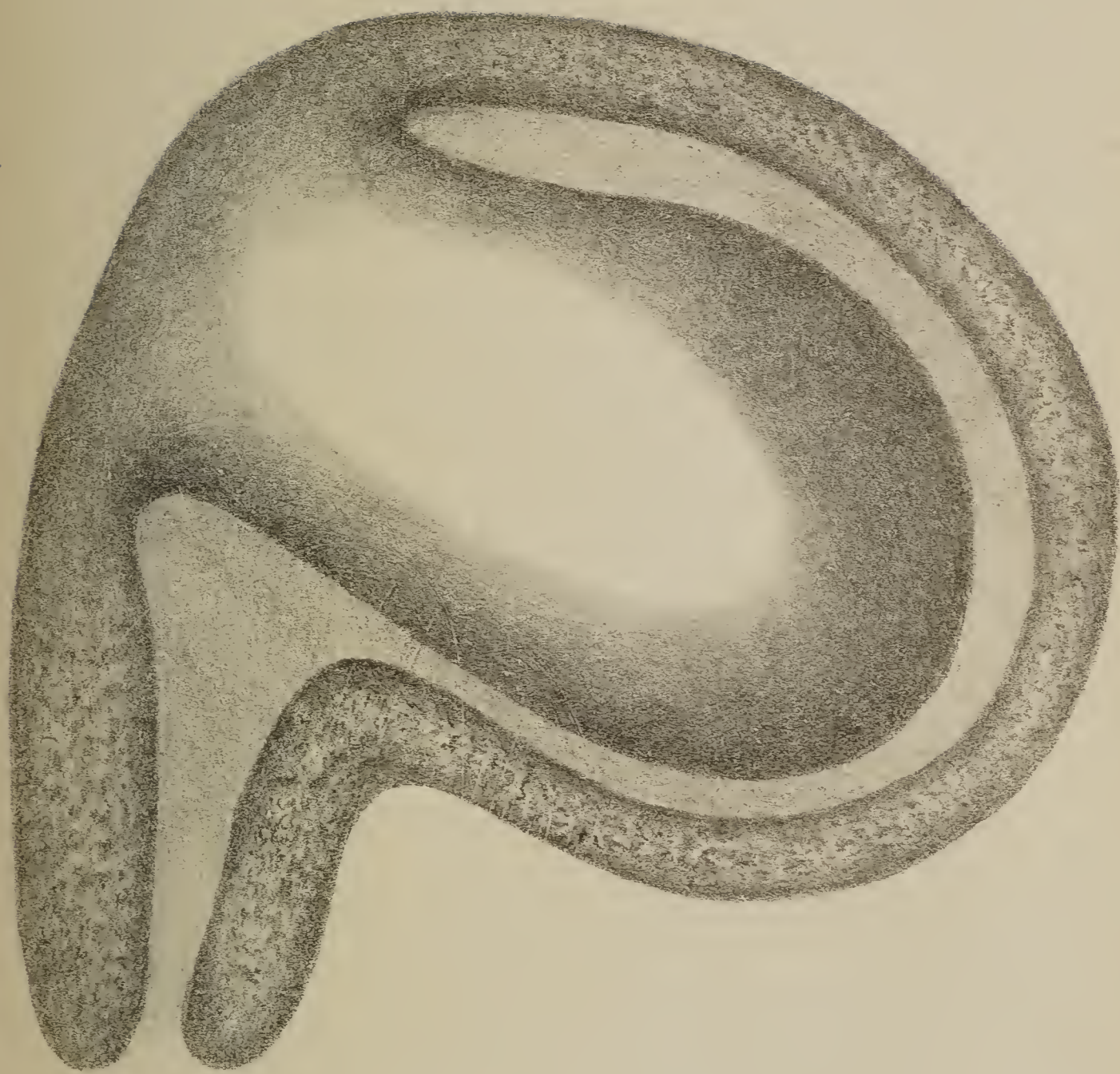
introducing it. Even then it is not so good as the old-fashioned sponge plug. Sponge is the reverse of cotton; it expands when wet, and fills the vagina more completely. When the cotton plug is wet the blood will trickle past it; whereas the blood gets into the interstices of the sponge and coagulates, and the hæmorrhage is arrested. I have, therefore, nearly given up cotton, as a material for plugging, in cases of these fibrous tumours. There is one way in which cotton can be rendered more efficient, and that is by saturating the first portion introduced with perchloride of iron; this produces coagulation, and the bleeding is checked. And a more efficient method, when it can be managed, is to plug the os uteri itself with a piece of prepared sponge, and it will give the patient much less inconvenience, and be a very effectual plug. Sometimes these intra-mural tumours are in such places that they can be removed. I have one here which was situated on the posterior lip of the uterus, and I removed it with an ecraseur.

Intra-uterine tumours may grow from any part of the uterus, but I never met with one growing in the canal of the cervix. They grow, in my experience, chiefly from the cavity or body of the uterus, and they may attain a very formidable size. There is a point with regard to these tumours that I have observed, and which I have never seen noticed by writers, and it seems to be one of considerable practical interest and importance. It is shown in an exaggerated degree in this drawing. The tumour, in this case, grew from the body of the uterus, just above the os-internum, and it lay in the canal of the cervix. It grew from the anterior wall of the uterus, and pressed out the posterior wall as you see it in this drawing.^a When a finger was passed into the vagina, the tumour could be felt like a retro-flexed uterus, the posterior wall of the uterus was so bulged out. My present experience of these tumours, where you have one side of the uterus bulged out, is that the pedicle of the tumour is attached opposite to the bulging part of the uterus. I have seen a number of these cases. In the case to which the drawing refers there was great difficulty in introducing sea-tangle, from the position of the pedicle and the shape of the tumour. When it was attempted to pass the tangle where the side of the uterus was straight, it hitched on the pedicle. At the other side it was difficult to get the tangle in, because of the convexity of the tumour. So frequently have I met with this circumstance, that the tumour bulges out the wall of the uterus opposite to where it is attached, that I have ventured to predict where the attachment of the tumour would be found, and I have been, up to the present, invariably right. The tumour I now exhibit presents this feature in a remarkable

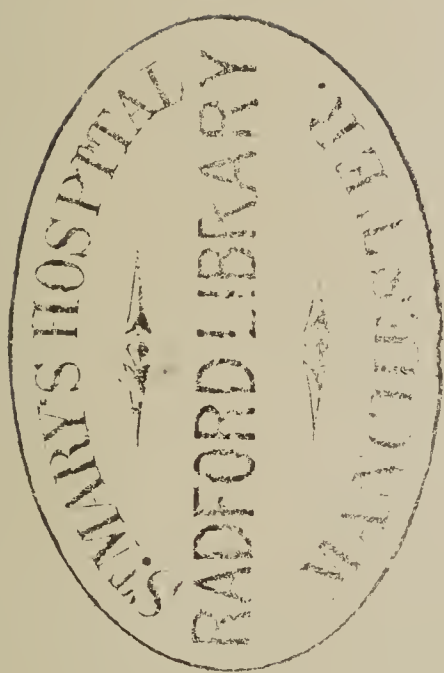
^a This and the succeeding diagrams are intended to represent the condition of the uterus and tumours before operation, as ascertained by the sound and finger. The tumours are shown of the full size they presented when removed.



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degree. It was removed from a patient of Dr. Ringland's. She had been greatly reduced by hæmorrhage; and when she came under our observation the fundus of the uterus could scarcely be felt in the abdomen, but we could feel, when we passed the finger into the vagina, a large tumour under the body of the pubis. We dilated the uterus and explored it, and removed the tumours. The removal of these tumours is done by dilating the os, and detaching them with the ecraseur.

Some years ago I brought under the attention of the Society some cases of intra-uterine polypus. I gave a diagram of a case where the wall of the uterus was bulged out, and my impression then was that the polypus grew from the part where it was bulged out. My subsequent experience leads me to believe that this was an erroneous observation and that it grew at the opposite point.

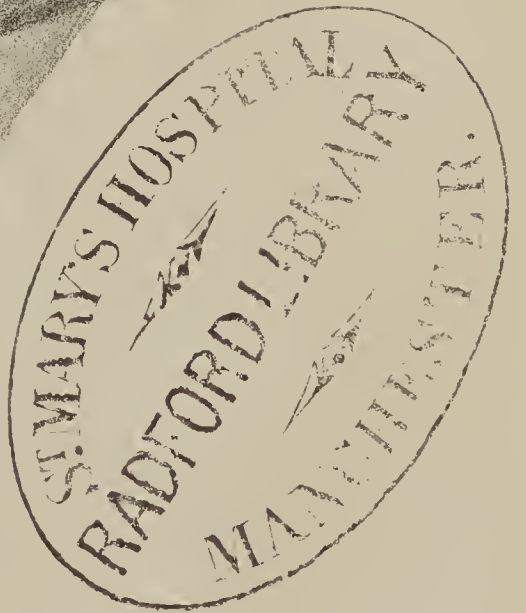
The tumour I exhibit in this glass was the first large-sized one I ever removed. It was the case of a lady of very considerable position, and it was the first time I had an opportunity of trying my hand on these tumours in that rank of life. In my operations for small tumours and polypi, I was in the habit of using for an ecraseur a soft iron wire, and I thought there were advantages in using it. I attempted to remove this tumour with a soft iron wire and failed completely. My patient was very courageous and very determined. She waited a few weeks, came back to town, and I tried again, and succeeded at the first effort in removing the tumour. I succeeded because I used a steel wire, a piece of piano string, in fact, which answered the purpose admirably. The long neck of the uterus is dilated with sea-tangle until the finger can go up, and the tumour is caught and fixed by a vulsellem. The soft wire when passed up assumes the shape of the canal of the cervix, and it is difficult to expand it again so as to get it round a large tumour. By using a steel wire you can compress it to get it through the narrow os, and when you get it up it expands by its own elasticity, and you slip it over the tumour with ease. I took out the tumour in three portions. It was so broad I could not get the wire completely round it. I dragged it down by the vulsellem, took away a piece, and this gave room to take away more, and in this way the whole was removed at the one operation. I have had repeated opportunities of seeing this lady, and she is in good health, and her uterus is now normal in size and position, and menstruation is very moderate. The next large tumour I attempted to remove was this one, and I was assisted in the operation by Dr. Beatty. This grew from the fundus of the uterus, which was even and regular. It was very soon after I had failed in removing the other tumour that I was called on to operate for this. It weighed seven ounces, the other one being two and a half ounces. I kept the woman in hospital six weeks before I could make up my mind to attempt the operation. So deterred was I by the difficulty

I had experienced in using the soft wire. Turning it over in my mind, Dr. Barnes' suggestion to use steel wire for dividing the foetal head in certain cases of difficult labour occurred to me, and I determined to try it, and with it I succeeded in snaring the tumour and taking it away at the first attempt. I had an opportunity yesterday of hearing of this patient. She had been nearly dead when she came into hospital. In fact she had been taken out of her bed and laid on the floor "to die easy," according to the superstition of the country, when Dr. Clarke, of Bailieboro', who was passing by, went into the house, plugged the vagina, and checked the hæmorrhage, and then had her sent to me. She is now perfectly recovered, and most anxious to return to the hospital to learn to be a nurse. Here is a drawing of another tumour taken from a woman from Newtownmountkennedy. This drawing exhibits, in a minor degree, the bulging out of the wall of the uterus opposite to where the tumour grew. It grew from the posterior wall of the uterus, and was easily removed with the steel wire.

The next specimen I have to exhibit is a tumour which resembled very closely the one I removed in three portions. It was taken from a patient of Dr. Brady's; and he and Dr. Evory Kennedy assisted at the operation. Dr. Kennedy said he saw this lady at the time of the last menstruation, and he verily believed she could not have survived such another. She is now quite able to attend to her business, and I believe is very well. The operation was performed six or eight months ago, and the case was not a promising one. When I passed my finger into the uterus, I found a large mass growing from the posterior wall, and another tumour growing in the anterior wall. We removed, in three portions, the mass growing from the posterior wall, which was all that was prominent in the uterus, but we left that which was imbedded in the anterior wall. Her first menstruation after the operation was a profuse one, and I had to plug; but her subsequent menstrual discharges have been very moderate. She is a young woman, and is every day at her place of business in a large establishment in this city.^a

In that case I ventured to predict before the operation, from the peculiar shape of the uterus, where we should find the pedicle. There is only one other point as to these intra-uterine tumours which I wish to speak of. Sometimes they are removed by nature. Here is one expelled out of the uterus without any interference of art. Here is another that was also expelled in the same way. In one of these cases, the lady came from Cork, and placed herself under my care. I found signs of a

^a Since the date of this communication, this lady has again been under my care. Menstruation, instead of lasting from twelve to fifteen days, as before the operation, now lasts only four days, but still very profuse. The uterus was increased in size; and on exploration, two small outgrowths were found on the anterior wall, and removed.



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considerable tumour in the interior of the uterus, and I made arrangements for the removal of it. An appointment was made for the operation, and some friends were requested to join me. I happened to have a very fatiguing case the night before, and begged to be allowed to postpone the operation. It was accordingly put off. That night the lady had a rigor. The next morning her pulse was 150, and she was in a high fever; and she remained in this state for a fortnight, and at its termination this mass was expelled. There was no return of hæmorrhage, and she went home to the country comparatively well, and the uterus greatly reduced in size.

The Vice-President, Dr. Byrne, said they were all delighted with the interesting and practical paper of the President. They were much indebted to Dr. Kidd for the improvement of the surgical treatment of these tumours. He (the Chairman) had been assisted by Dr. Kidd in a case where, were it not for the use of the sea-tangle, they would have been unable to do anything. It was a semi-sessile tumour giving rise to hæmorrhage. By dilating the os uteri they were enabled to remove the tumour by the ecraseur. He had never witnessed a case where a tumour was expelled by natural processes alone; but he had come across cases in the dissecting room where these intra-uterine tumours had undergone calcareous degeneration, and in which, if the patient had lived longer, the tumour would probably have been expelled. Dr. M'Clintock, in his work on uterine diseases, had mentioned some interesting cases bearing on that subject. There was one great cause for satisfaction in respect to these tumours, that except they assumed the form of polypi, when the menopause occurred, the hæmorrhage caused by the tumour ceased. He had had under his observation the case of a lady who was blanched with hæmorrhage, produced by a large fibrous tumour. She was several times on the point of death, but when the menopause came the hæmorrhage ceased.

Dr. DENHAM said there could be but one opinion that they were deeply indebted to the President for the highly practical remarks on the valuable cases he had presented to them. He could strongly corroborate many of the interesting facts Dr. Kidd had referred to. One was the great variety of distress which the patients suffer in these cases of fibrous tumours, particularly whenever they were on the peritoneal surface of the uterus, or imbedded in the muscular wall. He remembered a patient who was in the habit of coming to the Rotunda Hospital. She had a large fibrous tumour in the anterior wall of the uterus, and she came to the hospital suffering from retention of urine. They always drew off a quantity of healthy urine, and every month or six weeks the operation

would have to be repeated; but why the retention came on at any particular period they could not tell. He believed she was still in the habit of going to the hospital, and the tumour was progressing slowly in its growth. There was one form of danger from these tumours in the substance of the uterus which had not been alluded to—the possibility of a woman thus affected proving pregnant. He remembered a lamentable case of that kind. A large, stout, healthy woman, 30 years of age, proved pregnant. Unfortunately for her there were several of these tumours imbedded in the body of the uterus. She had a tolerably healthy labour, and the child lived, but she died from flooding, it being impossible to produce contraction of the uterus.

He quite agreed with Dr. Kidd as to the inefficiency of plugging. He had very little faith in it. He thought they could not plug the *os* better than by putting in some pieces of sea-tangle, and applying nitric acid to the tumour itself. Plugging did not reach the seat of the disease, and there might be internal hæmorrhage going on while the bleeding was to all appearance checked. Therefore he did not have recourse to plugging on these occasions, and he agreed with Dr. Kidd in his objection to cotton, because of the manner in which it contracted when wetted. With respect to internal tumours, Dr. Kidd had left nothing for him to say. The question of spontaneous separation of the tumours was one of great interest, but it was a process they could not wait for. It was an event of such rare occurrence that no sane man would wait for spontaneous cure when his patient was suffering from repeated hæmorrhage. He had not the apprehensions Dr. Kidd entertained as to the preparations of iron. He had several times introduced them without any bad effect. He saw a case of *post-partum* hæmorrhage, in consultation with one of the most excellent practitioners in Dublin. That gentleman objected to the introduction of iron, and said he had used it and found it produced intense pain and suffering, but there were no after bad consequences. He remembered a case of fibrous tumour lately where he tried nitric acid freely, but the hæmorrhage returned. He then introduced perchloride of iron. It induced no pain or inflammation, and the hæmorrhage had not returned, although it was two years ago.

Dr. ATTHILL said it would be quite impossible at that hour to enter fully into all the views which Dr. Kidd had brought forward, and he would only detain the Society by a few observations. He wished to bear his testimony in favour of the steel wire, the use of which had been introduced into Dublin by Dr. Kidd. He considered it superior to any other material for performing *écrasement* they could possibly use in these cases. With regard to the point of attachment of these tumours he was not

quite sure that he could accept the proposition that a tumour bulged out the portion of the uterus opposite its apex, instead of the portion corresponding to its attachment. He remembered having under his care, some twelve months ago, a case in which there was a tumour as large as a walnut, where the point of attachment was at the place where the uterine wall bulged out. If Dr. Kidd did not lay it down as a positive rule, his observation might be correct, generally speaking, but, undoubtedly, there were exceptions.

He was not altogether in accordance with Dr. Kidd in respect to plugging. No doubt the most efficient way was to plug the os-uteri by means of sponge tents, but that was difficult to do when the woman was bleeding rapidly. He preferred the cotton, and he had found it tolerably effective. He first introduced a piece of cotton saturated with perchloride of iron and glycerine, next, a piece saturated with pure glycerine, and next pieces that had not been saturated at all. When cotton did not succeed it was often because it was not properly employed. A short time ago a woman in the Adelaide Hospital with menorrhagia was attacked with small-pox, and, of course, removed to another ward. She was plugged by the resident pupil, but he failed to arrest the hæmorrhage, and he (Dr. Atthill) had to do it himself. He adopted the course he had just mentioned. After he had put in a considerable quantity of cotton, he withdrew the speculum, and introduced more. The woman did not lose a drop of blood afterwards. He left the plug in 24 hours, and when removed at the end of that time it was nearly inodorous, from the use of the glycerine. His objection to the sponge was threefold. First, the difficulty of introduction. They had to divaricate the labia with the fingers, and force in the sponge, with the certainty of giving pain to the patient. No doubt the sponge would swell, but unless it swelled to the exact size of the vagina it became necessary to put in another piece. The next objection he had was the horrible stench it caused. They could not control the stench, as with cotton, by the use of glycerine. His third objection was the expense. In a great many houses there would not be a suitable sponge, and the practitioner could not always carry sponges in his bag to be cut up for that purpose. He would, therefore, adhere to cotton for the present, as he had found it an efficient plug when properly employed. With respect to the internal application of nitrate of silver, nitric acid, and perchloride of iron, he agreed with Dr. Kidd. The only severe case of pelvic cellulitis he had ever seen was brought on by perchloride of iron. The nitric acid he thought highly of. Dr. Gogarty brought a case before the Society last session in which he showed that hæmorrhage depending on the presence of an intramural tumour was checked by nitric acid. Dr. Denham's observations as to perchloride of iron did not apply to the question before the

Society. It might be used with perfect safety in cases of *post-partum* hæmorrhage, and he never hesitated to use it in such cases, but he did not think he would ever try it in a case of intra-uterine tumour. The reason it was so harmless in cases of *post-partum* hæmorrhage was that it had very rapid exit.

With respect to the effects of pregnancy and menstruation on these tumours, it was a matter of great importance. It was one of those questions that occasionally cropped up in practice. A woman, known to have a fibrous tumour, who was about to get married, consulted him as to the propriety of doing so. He gave a strong opinion against the advisability of that course. It was clearly proved these tumours enlarged much during pregnancy, and gave rise to very grave symptoms, endangering the patient's life. He thought, therefore, if a physician were consulted about marriage where he knew a fibrous tumour existed, he ought to give an adverse opinion. The cases of subperitoneal tumour were often very strange. A woman from the country came under his care, suffering from difficulty of emptying her bladder, which was only transitory. Two years ago she suffered occasional difficulty in passing water and in defecation. She had a tumour half way between the pubis and the umbilicus. The uterus was altogether thrust up to the left side, and he thought the tumour was attached to it by a small pedicle.

Dr. DENHAM observed that he had merely referred to the use of perchloride of iron in cases of *post-partum* hæmorrhage to show that, if it did no injury in those cases, it was not likely to be injurious in hæmorrhage resulting from the existence of a fibrous tumour.

The PRÉSIDENT thanked the Society for the manner in which his communication had been received. He might, had time permitted, have ventured to adduce some cases of fibrous tumours complicating pregnancy. He had seen two women die soon after labour from the effects of sloughing and disintegration of fibrous tumours in the uterus. He remembered the case of a woman living in Dominick-street. The students who attended her thought she had twins, and after waiting for some time for the second child, sent for him. To clear up the doubt that existed, he introduced his hand, and found a large fibrous tumour in the fundus of the uterus. He went back to see the woman occasionally, and on the fourth day he saw her up, and washing clothes. She came to the Coombe Hospital two months afterwards, and he found the uterus had gone back to its normal size. That was an intra-uterine tumour; the others were intra-mural. He had three times attended a lady who had a large mass of sub-peritoneal fibrous tumours; they lay high up in the abdomen, and never affected her labours, nor were they

themselves affected. It may be in the recollection of the members that he had, during a previous session, brought before them a case where a large tumour completely blocked up the brim of the pelvis and prevented the entrance of the head. In that case he succeeded in putting the tumour up into the abdomen by using one of Barnes' bags in the method he had alluded to in his communication. As to perchloride of iron, no one would advocate its use more than he should in *post-partum* hæmorrhage. He was the first to use it in Dublin, and he did not flag in his devotion to it in suitable cases; but when applied to the interior of the uterus after any operation, his experience of it was unfavourable. He thought it produced more irritation than nitric acid, and not so much benefit. Dr. Atthill strongly advocated the use of plugging. He (Dr. Kidd) said that cotton, saturated with perchloride of iron, would check the hæmorrhage, but it was very liable to cause a great deal of irritation of the vagina. The sponge seemed to him to be more efficient than cotton. It was not difficult to introduce the sponge without hurting the patient, if they used for that purpose a duck-billed speculum.

The Society then adjourned.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

ROBERT W. SMITH, M.D., Secretary.

MR. TUFNELL, President, in the Chair.

Hernia.—DR. TYRRELL said he had to present to the Society two specimens of hernia. The first was taken from the body of a man about 60 years of age. He was a large, over-fed grocer, who fifteen years ago got an inguinal hernia, for which he procured and wore a truss. Increasing corpulency, however, rendered it too small, so that it allowed the rupture to descend, and he neglected to procure a larger one. After about fifteen years' inconvenience and suffering, from time to time, he was at length unable to return the bowel, and applied to his medical attendant. After four days he came to the hospital, labouring under the usual effects of strangulation, for the relief of which, as the intestine could not be returned, the usual operation was at once performed. About half a pint of blood-coloured serum escaped from the sac. The intestine, which was thickened and very much congested, was easily replaced.

He slept well that night, but on the following morning had a severe fit of coughing, during which the intestine came down again, and there was considerable effusion beneath the dressings. The ligatures were at once removed, and the intestine exposed. It was found to be of a blue colour, crepitating, and gangrenous. Under those circumstances he determined (after consultation with his colleagues), to open the gangrenous portion of the intestine, and leave it unreduced. In a few hours afterwards the man sank and died.

On *post-mortem* examination the first thing that struck him was the entire absence of *peritonitis* in the abdomen—there was not the slightest sign of it in any portion of the membrane. The next circumstance was the enormous thickness of the gut; it was fully a quarter of an inch thick, and was almost like sole leather. Its calibre was reduced to that of a No. 12 catheter.

The second specimen had been taken from the body of a woman about 35 years of age. She was a wretched-looking and emaciated creature, suffering from phthisis. On that day fortnight, during a fit of coughing, a small portion of the intestine descended and became strangulated.

Four days afterwards she was sent to the hospital on a car, seven miles from the country, and arrived in the hospital at three o'clock in the day. She was then almost moribund; she was cold, her pulse could scarcely be felt, and she was vomiting like a person in the last stage of cholera. The tumour was about as large as a walnut. Accordingly, the chance of relief from operation was given her, although the case seemed well nigh hopeless. When the sac was opened not more than a few drops of fluid escaped. He divided the stricture, and returned the protruded intestine, having first gently drawn it down and examined its condition at the seat of stricture, and next morning he had the gratification of finding that the woman was very much relieved. She continued to improve until the fourth day, when about six o'clock in the evening she suddenly complained of severe pain in the abdomen, which became tympanitic to a great degree, and she died on the following morning about three o'clock.

On examination it was found that the intestine had given way at the point of constriction. There was an aperture in it about the size of a pea, through which its contents escaped into the peritoneal cavity. The case forcibly illustrates the peril of delay in strangulated hernia, more especially when it took the form of femoral. And yet in a large proportion of the cases brought to hospital the surgeon was called on to perform the operation at a time when all chance of saving the patient was gone. The operation should never be delayed. Every hour, nay, every moment the intestine continues strangulated adds immensely to the patient's danger.—*January 20, 1872.*

Cerebral Tumour.—DR. YEO said that although the specimen he now exhibited was without any clinical history, it was yet one of interest, as he could not find any instance of a similar tumour recorded in the Transactions of the Society.

It was a hard calcareous tumour, about the size of a cherry, weighing 25 gr. when dried, which was found in the brain of an aged male subject, in the anatomical theatre of Trinity College. It was situated between the layers of the septum lucidum, surrounded by brain tissue; here and there a delicate membrane remained when the nerve tissue had been washed away. Some small vessels connected with its posterior extremity passed back between the pillars of the fornix over the anterior commissure, and thus communicated with the veins of the choroid plexus, lying just in the same position as the fine process of pia mater, which, in the fœtus, connects the small choroid plexus of the fifth with that of the other ventricles. From the position, and the vascular connexions of the tumour, it might be presumed to have existed for a considerable period,

and, in all probability, to have commenced its growth in early youth, because the small triangular opening of communication between the ventricles is closed at a very early period, according to Tiedemann.^a

The tumour was very hard, friable, rough on the surface, and of a pale yellowish colour; the section made with a saw showed the same structure throughout; the roughness depended upon a number of small calcareous bodies about the size of a pin's head, pretty firmly connected together by a small amount of gritty, connective tissue, which, under the microscope, was seen to contain an irregular calcareous deposit, and a few very small vessels in which no concretion could be discovered, nor did they appear at all connected with the calcareous bodies, but rather to run between them.

The microscope showed each of these bodies to be composed of a number of minute round or oval, granules, firmly agglutinated together, by a dense cement, thus forming a kind of miniature conglomerate. These small granules seemed to be made up of regular layers, concentrically arranged around a kind of nucleus which generally was of a dark colour. From their density they appeared to be composed entirely of calcareous matter, but when treated with mineral acids, the inorganic material was removed, and the remaining tissue retained the shape and concentric arrangement. When pressed upon, this organic foundation broke up into very thin irregularly angular plates of various sizes, which appeared to be the fractured pieces of the separated concentric laminæ. No nucleus or other characteristic of a cell could be seen in these fragments of tissue, and they gave rather the idea of a homogeneous structure arranged in concentric layers. The cement uniting these little grains had a finely granular appearance, being, throughout, the seat of a dense, irregular, amorphous deposit of inorganic matter; when decalcified it acquired a distinctly fibrous aspect, and was evidently connected with the tissue which held together the coarse bodies; neither vessels nor cells could be found in this tissue.

Chemical analysis proved the mineral parts of the tumour to consist principally of carbonate of lime, with a smaller amount of phosphate; the existence of magnesia could not be demonstrated.

Dr. Yeo considered this to be a good example of the class to which Virchow has given the name "*Psammoma*,"^b and from its structure it obviously belonged to the connective tissue group. The calcareous deposit having taken place in a pre-existing tissue, the paucity of cells in the fibrous stroma, which acted as the organic foundation, would exclude it from a place among the true sarcomata, where Ranvier has placed these tumours; while the insignificant size and scanty supply of

^a Anat. of Foetal Brain, p. 278.

^b Die Krankhaften Geschwülste. Bd. II., p. 106.

vessels, and their immunity from concretion, showed that they did not form so important a constituent in this as in the third case described by Arnold,^a or in those which suggested to Ranvier^b the name “Sarcôme Angeolithique.”

Nothing was observed to suggest the idea that epithelium acted as the foundation of the tumour, as Ludvig Meyer^c has argued, or to authorize the name “globes épidermiques,” which Robin has applied to the concentric bodies, considering the psammoma to belong to the epithelioma group. Nowhere could any concentric arrangement of spindle-shaped cells, such as Steudener^d describes, be found; and if such had ever existed they were no longer recognizable when decalcified. The most careful decalcification tended to show that the concentric arrangement depended upon laminæ of unorganized material, laid around some central body, or nucleus, the dark colour of which seems to support Virchow’s idea, that small coagula of blood act as the starting point of these concentric depositions of unorganized material, in which the inorganic matter is subsequently laid down. This tumour was remarkable for the completeness of its petrification, which quite entitled it to the name of a calculus, though it prevented it from throwing any important light on the subject of the etiology of psammoma.—*January 27, 1872.*

Cancer of the Stomach.—DR. YEO said the morbid specimen which he now exhibited showed what a rapid course cancer in the abdominal cavity may run, and the great extent the disease may attain, while it remains comparatively latent as to signs and symptoms.

The patient, a female, aged forty, came under observation the 2nd of December last. She then stated that she had been six weeks ill, and complained of indigestion, some slight irritability of stomach, and constant diarrhœa, but had no distressing vomiting, nor did she ever complain of any pain in the abdomen. In this condition she remained till the 10th of January, when some ascites began to collect, which, in ten days from its first appearance, gave so much distress, and had such an effect on her breathing, that it became necessary to have recourse to tapping, which was done on the 18th. But little fluid collected after the tapping, yet she sank rapidly, and died on the 2nd of February.

Post-mortem examination showed the thoracic viscera to be perfectly healthy. The abdomen contained about a quart of pale, yellowish, fetid fluid. The peritoneum was everywhere covered with a soft exudation, and numerous small, hard, white nodules were dis-

^a Virchow’s Archiv. Bd. LII., p. 454.

^b Manuel d’Histologie Pathologique. P. 133.

^c Virchow’s Archiv. Bd. XVII., p. 217.

^d L. C. Bd. L., p. 222.

seminated on both its parietal and visceral layers. The omentum was contracted into an irregular, hard, nodulated, oblong tumour, which was firmly attached to the colon. The gastro-hepatic omentum was about one inch thick, much indurated, and contracted to about one-fourth its normal length. The mesentery was also very thick and contracted, appearing to drag the intestine towards the vertebræ. The walls of the stomach almost in their entire extent were increased in thickness to about three quarters of an inch. They felt hard and elastic, and the section had a semi-translucent greyish or yellowish white appearance. On the internal surface of the anterior wall, about its centre, there was a deep cavity which penetrated all but the serous coat, and had very much the appearance of a sloughing ulcer. The intestines were contracted, the walls being thickened, and stiffly elastic; however their serous and subserous coats only were affected. The sigmoid flexure of the colon and upper part of the rectum were converted into a hard, tough tumour, the calibre of the intestine being reduced to that of a goose quill. In the pelvis the whole peritoneum was converted into an irregular, dense, yellowish mass, which enclosed all the pelvic viscera. The interior of the uterus and the bladder were healthy, but the ovaries were inseparably amalgamated with the diseased peritoneum. The liver was small, but quite healthy, with the exception of its serous covering, which was studded with the same small nodules as the rest of the peritoneum. All the other abdominal viscera were quite healthy.

The microscopic examination of the different parts of the diseased structure showed it to be a well marked carcinoma. In the peritoneum it presented a more or less fibrous character, while parts of the stomach, where the spaces between the stroma were wide and filled with a clear fluid, precipitating mucine, and containing many multicaudate cells, appeared to have a myxomatous character, while other parts were undergoing fatty degeneration, the ulcer on the anterior wall probably depending upon such a process in an acute form.

Dr. Yeo considered the ascites to have been caused by the contraction of the gastro-hepatic omentum interfering with the circulation in the portal vein, though doubtless the peritonitis may have assisted in its production.—*February 3, 1872.*

Carcinoma of the Stomach and Liver.—DR. A. W. FOOT brought before the Society two drawings of pathological specimens which he had become possessed of before the opening of the present session, and which could not be kept sufficiently well preserved to warrant his laying them on the table. The drawings were illustrative of the great importance of following up the life history of tumours after operation, and represented, one

the stomach, the other the liver of a man aged 61, who died under Dr. Foot's care in the Meath Hospital, in September, 1871, twenty-one years after the removal of a tumour from the left breast. The stomach presented a large fungous mass, the size of a man's fist, irregular, black, and sloughy-looking, occupying the œsophageal region of the stomach and occluding the gullet, which itself, however, was quite intact, and showed only a hypertrophy of its muscle from constant efforts to overcome the obstruction to the entrance into the stomach of food or liquids which the fungous growth occasioned. The mucous membrane of the stomach in the vicinity of the base of the growth presented several small, nodular, sub-mucous projections, not of a polypoid form, such as are met with in colloid carcinoma, but the outlying knobs which are picketted about the main growth in medullary carcinoma of this organ. The condition of the liver was very accurately represented in the second drawing; it weighed 8lbs., and occupied the upper half of the abdominal cavity, although the enlargement principally affected the right lobe. It was bossed and humped with soft and sometimes semi-fluctuating tumours, varying in size from an acorn to a turkey-egg—many of them flattened on the surface, some on the posterior aspect of the organ concave. The smaller of these tumours were, on section, found to be composed of distinctly-defined masses of cheesy material, softening in the centre, the larger ones were quite liquified, and an offensive gas bubbled through the frayed peritoneum, covering their most prominent parts. The ligaments were not unusually vascular, the gall-bladder contained no calculi, but a thin bile; very little of the proper hepatic tissue remained except along the diaphragmatic border of the organ. There was no ascites, the spleen was small—all the abdominal viscera exhibited a strong tendency to rapid putrefaction. Twenty-one years before his death a tumour was removed from his left breast in the Meath Hospital, by the late Josiah Smyly; soon after this operation a fresh growth appeared in the situation of the former one, but grew slowly for several years until he hurt it, and caused it to bleed profusely, after which it rapidly increased in size. He applied at the hospital for relief for this second tumour in May, 1861. It was then the size of an orange, firmly attached by a broad stalk to the skin of the thorax in the left mammary region; it moved freely upon the pectoral muscles and had no deep adhesions; it stuck out from the chest very prominently, was growing from the cicatrix of the former operation, and along the line of the cicatrix towards the left axilla were cartilaginous nodules of a livid colour; the integument over the summit of the tumour had ulcerated, and it was in that part encrusted with many scabs; it had a spongy but resilient feel on pressure, and gave no pain. It was again removed, six arteries required ligature, yet on section the interior of the tumour appeared to the naked eye to be a dense, close, white, and

homogeneous structure. It was called at the time a white fibrous tumour; it looked very like stiff *blanc mange*; a few vessels containing a brownish liquid traversed its interior. The tumour never re-appeared in the breast, but in the year 1871 he came a third time to hospital, complaining of dysphagia, which symptom and an enlargement of the liver occurred contemporaneously six weeks before he sought admission, and rapidly increased during the three weeks which he spent in hospital before his death. The difficulty in swallowing increased till he became unable to take even liquids; he had to "fight down" milk and whiskey, on which he lived for many days. Having abstained from spirits for the last thirty-five years of his life, he derived much benefit from even very small doses of alcohol in his present state; but at last his nourishment consisted in wetting his lips with whiskey. The nature of the hepatic enlargement could be distinctly made out, peritoneal friction was very audible, and after death its cause was seen in the coarse, brownish, reticulated exudation which sheeted large tracts of the anterior surface of the liver, between and on many of the cancerous prominences. He never suffered from any pain, his answer to inquiries on this subject was, "Not a pain in the world." A linear cicatrix with absence of the nipple indicated the site of the previous mammary tumours. The pleuræ were free from any evidence of cancerous infection, the left one especially was most carefully examined with reference to the point. Both cavities were free from effusion or deposit upon their serous membranes, and presented no appearances of disease further than the usual amount of pleural adhesions observable in the thoracic cavities of elderly persons.—*February 10, 1872.*

Hernia.—DR. BARTON said, the subject of hernia has long occupied the attention of surgeons, and much has been carefully observed and written upon this disease, yet the case that I exhibit to the Society this evening presents characters which I believe to be, if not unique, at least extremely unusual. It was the case of a man aged 55, who was admitted to the Adelaide Hospital on the 20th of last November, suffering from an irreducible hernia. He had presented himself to me two months previously to that time, and asked me to see if anything could be done for his relief. I laid him down on the floor, and found that the hernia was irreducible—at least it was reducible but to a partial extent. I gave him some advice regarding the proper form of truss to be provided, and advised him, if he felt any pain or inconvenience, to come into hospital. He followed this advice in two months afterwards, and was admitted on the 20th November, under the care of my friend Dr. Richardson, at whose request I exhibit these pathological preparations and the drawings

representing the case. The history of the case was shortly as follows:— About two years previous to the man's admission to hospital he observed a hernia projecting on the right side of the inguinal region. It gradually increased, but it was not until a year after its first appearance that it came down into the scrotum. It then came down under circumstances of unusual exertion. The man was a cook on board the mail steamer *Munster*, and while engaged in putting a heavy box of coal into the fire the hernia suddenly came down into the scrotum. This made him feel weak and faint, and the scrotum was greatly distended. The pain and faintness passed off, but the tumour remained. He continued working at his occupation for nearly a whole year after this occurrence. Upon his admission the following was his state, which I will read to you from Dr. Richardson's notes:—

“Large scrotal hernia, with its neck at right inguinal region, measuring 14 inches in longest diameter, and 24 inches in circumference. When he is in upright position the tumour becomes uneven on the surface. On manipulating the tumour gurgling becomes very manifest; about a third of the hernia can be reduced, and then some sausage-like masses can be felt at the lower part of the sac.”

Upon the evening of the 16th finding the tumour so tense, and increasing in size, so as to threaten the occurrence of gangrene, Mr. Richardson thought it well to tap the lower and transparent part of the tumour, to relieve tension by that means. Accordingly, at half-past eleven that night he tapped it, and drew off three pints of albuminous and light-coloured fluid. It appeared the next morning that the fluid had been flowing out during the night, and trickled partly into the bed, but in a great degree into the areolar tissue, and the whole of the tumour was distended by an œdematous swelling, which extended to the penis, and caused it to be embedded in the soft swelling. An incision was made to let out the fluid. As, however, the great swelling and tension of the scrotum continued, a consultation was held, and Dr. Walsh and I agreed with Mr. Richardson that we should operate, under the idea that part of the tension might have been caused by stricture. The bowels had now been without action for some days. What appeared to render the operation chiefly desirable was the extreme tension of the sac, which seemed to threaten gangrene. Consequently, at half-past ten at night Mr. Richardson performed the usual operation for relief of stricture of the ring.

In his note he says—

“I cut down upon the front of the neck of the tumour, dividing the layers of covering one by one; they were not much thickened; the neck was very tense; it was opened, and the bowels exposed.”

I will never forget the appearance the coils of intestine presented when

exposed. They bulged up, covered with a white creamy substance like soft lard, which being rubbed off showed the surfaces underneath to be of a lively pink colour. We found there was no stricture. The fingers could readily be pushed up into the abdomen, but not any of the bowel could be returned. This soft lymph covered them completely, but strange to say there was no adhesion. Having satisfied ourselves that the symptoms were not caused by stricture, and having relieved the tension by this operation, the wound was closed by silver sutures, and opium was resorted to. I should have mentioned that upon the day of the operation we found that the distension of the abdomen had greatly decreased. It was now quite apparent that what had been tapped at the lower part of the scrotum was the sac, and that it had drawn off the ascetic fluid from the abdomen. The patient was kept up by means of champagne, soda water, and opium internally. He lived two days after the operation, and died with the same symptoms he had had all along. Dr. Barton then exhibited drawings of the tumour both before and after tapping, and continued—We made the *post-mortem* with great interest, and it disclosed an unusual state of parts. First of all we found that the cavity of the scrotum in which this enormous hernia was lodged was divided into numerous small cavities by extraordinary bands of lymph throughout it. When I hold it up you will almost think you are looking into an hypertrophied heart, with great carneæ columnæ extending across it, or of a diseased bladder greatly sacculated rather than the inside of a scrotal sac. There was no adhesion whatever between the intestines and the sac, none of the usual courses of an irreducible hernia; they were not kept back by adhesions, or any obstruction of the intestines themselves, by bands of lymph across them, but the coils of intestine were stowed away throughout these sacs, so that they could not be returned into the abdomen; they had to be taken out with great difficulty, swollen, inflamed, and covered with lymph, but evidently recent lymph. There was no omentum in the sac. The whole of the small intestine was in the sac, with the exception of *four feet* which remained in the abdomen; it was coiled in these curious pouches with which the scrotum is divided. Turning to the intestines, we find that the intestines that occupied these pouches had been evidently long inflamed. The first thing that attracts notice is a curious kind of suspensory ligament, formed by lymph bands, developed from the upper part of the sac, and which attached to the ring as it passes on, holds the intestines in a new kind of mesentery. This lymphic mesentery was attached to the ring, slinging the intestine, and holding them up in the sac; it is a very curious development of lymph. On tracing the intestine up we found it was all covered with lymph, and tracing it into the abdomen we found the entire of the abdomen was the seat of peritonitis.

The liver was deeply cirrlosed, congested, and hard. We found the testicles occupied the lower and inferior portion of the scrotum, and what seemed to be the testicle on the diseased side was a mass of lymph deposited there, and which had lain quite close, and was connected by bands of false membrane to the diseased sac. The testicle on the side not diseased was in the upper part of the sac. The question arises, how long had the state of inflammation existed in this man? Reverting to the state of facts, we find he complained of no pain till a recent period. He freely handled his enormous hernia. He used to lie on his back, handle the hernia freely in his efforts to reduce it, and probably on these occasions resorted to more force and pressure than was judicious, and thereby injured it; but he gave himself no pain, which, in the usual condition of things, we would suppose to have existed. Nor can this acute inflammation have only sprung up within the last few days, for at the time of operation we saw all the signs of it then existing. It appears to me that this sac must have been the seat of inflammatory action during the whole year the man was labouring as cook on board ship, developing these strange masses and bands of lymph into which the intestine was coiled. Then it spread up to the neck of the sac, and involved the abdomen and the peritoneum generally, and this increased more and more as the hernia became irreducible. Then the sac became more tense, and when we add to this the chronic congestion of the whole of that part kept up by the cirrlosed liver we have an explanation of the phenomena of this case.—*February 10, 1872.*

Apoplexy.—DR. A. W. FOOT exhibited a specimen of extensive effusion of blood at the base of the brain. The patient was sixty years of age, and had had delirium tremens. He was found by his wife, early in the morning, in a state of coma. When brought, at noon, to the hospital, the coma was profound. The left pupil was contracted (the other had been damaged by injury). The muscles of the upper extremities were rigidly flexed. Pulse 64, and regular; respiration 16, with two periods of apnœa in each minute. At 5 p.m. the temperature was 100 deg. Fahr.; sweating; pulse 64, respiration 30; no periods of apnœa. At midnight—pulse 124, respiration 44. At 2 a.m.—pulse 132, respiration 50. He died at 6.30 a.m., twenty-four hours after the commencement of the seizure, without ever having rallied in the slightest degree from coma.

The anterior portion of the medulla oblongata, the pons, and the interpeduncular space, were covered with a thick black coagulum, which had insinuated itself into the fissures of Sylvius—especially the left one. The source of the hæmorrhage could not be ascertained; but the fourth stage

of the left vertebral artery presented a cylindrical, aneurismal dilatation, and there was a sufficient degree of degeneration in the large vessels about the base of the brain to account for the profuse basilar hæmorrhage. The substance of the brain was firm, and free from any extravasation.—*February 17, 1872.*

Ulcers in the Intestines.—DR. A. W. FOOT exhibited drawings of extensive glandular ulceration in the intestines of two patients who had died of enteric fever in the Meath Hospital. The drawings were illustrative of the fact of the comparative latency of the gravest abdominal lesions in this disease; and taken in connexion with the thermographs of the cases, they indicated the great advantages of the daily use of the thermometer in bedside practice. One of the cases, a young woman aged 24, died on the 36th day of her illness: seventeen Peyerian patches were found in a state of ulceration upon the last fifty-three inches of the ileum, besides many solitary glands in a similar condition; the ileo-colic valves were indistinguishable, on account of the irregular and confluent masses of ulcerations which were crowded together in their immediate vicinity; there were three patches of ulceration in the vermiform appendix, and several solitary ulcers in the cæcum and first few inches of the colon. The Peyerian ulcers were raised above the adjacent intestine by an opaque yellowish friable deposit, deeply tinted on the prominences with blackish ochre; the surrounding areola was well defined, and of a rosy red. It was remarkable that there was a large amount of subcutaneous fat over the thorax and abdomen after such a protracted fever; the great omentum contained much greasy yellow adipose tissue. The spleen, which was large, and of a deep purple colour, soft, flabby, and pultaceous, crepitated under the fingers as if emphysematous, but when compressed under water very few air-bubbles rose to the surface. There were about three ounces of clear straw-coloured fluid in the abdominal cavity, but no evidence of recent or chronic peritonitis. During her illness but two rose-coloured spots were observed, although the skin was daily examined; there was no hæmorrhage from the bowels; the diarrhœa was not excessive, and always manageable; the abdominal pain was but slight and infrequent, and was relieved by poulticing: but the continually high temperature, especially in the morning, excited the apprehension of severe disorganization in the intestines.

The other case was that of a young woman aged 20, who also died on the 36th day of enteric fever. Her morning temperature for twelve days previous to the defervescence of approaching death had been above 103 deg. Fahr., and sometimes above 105 deg. Fahr. She had at no time exhibited a distinct typhoid eruption in any degree, the diarrhœa

and other abdominal symptoms were very moderate and manageable, there was no hæmorrhage, and it was the elevation of temperature which gave a clue to the serious organic mischief which was taking place: the temperature rose on the 21st day, and remained high till the 33rd, when it began to fall, owing to the advent of dissolution. In this case, also, the amount of subcutaneous fat was large, and the appendages to the colon were stored with adipose tissue. Numerous Peyerian ulcers were found in the lower portion of the ileum, some of which had the peritoneal coat for their floor; the cœcum and vermiform appendix were dotted with small solitary ulcers; there was no peritonitis, and merely a few ounces of clear serum in the depths of the pelvis. In neither case was there any serious thoracic complication.—*February 17, 1872.*

Colloid Carcinoma of the Stomach.—DR. A. W. FOOT brought forward a specimen and drawings illustrative of diffused colloid carcinoma of the stomach, with secondary infection of three large groups of lymphatic glands—one in the anterior mediastinum, a second in the portal fissure, the third, retro-peritoneal, in the lumbar region. The preparation also exhibited universal peritonitis, both chronic and recent, with much hæmorrhagic exudation on various parts of the serous membrane. There was no rupture of any abdominal viscus.

The subject of the case was a woman between fifty and sixty years of age; the duration of her illness, from the incipient dyspepsia, was four months. The prominent features of the case during life had been marked exemption from pain, hæmatemesis, or vomiting of food; ascites and œdema of the lower limbs existed, the extent of the former demanded paracentesis after her admission into hospital; a firm tumour to the left of and on a level with the umbilicus, fixed, not pulsatile, not tender, not giving friction, and very palpable until disguised by the increasing ascites; complete anorexia and progressive marasmus.

The stomach was found thickened very uniformly to the extent of half an inch from the cardia to the pylorus, to which limits the alteration in structure was confined; the mucous surface pale dead white and not ulcerated, with the exception of a very small portion near the œsophagus; a few polypoid growths were present in the vicinity of the œsophageal aperture. The cavity was diminished in size, and might be said to be in a condition of concentric hypertrophy. A section of the stomach-wall presented, from without inwards, first, a thin white line, then a stratum consisting of dense white striæ separating rectangular spaces occupied by a faintly buff-coloured glassy or corneous structure; then came the thickest layer of dead dull white condensed and altered sub-mucous and mucous laminæ. The tumour observed during life was found to be

formed by the cohesion of the left half of the transverse colon with the crumpled and indurated great omentum fused to the lower border of the stomach. The spleen was small, adherent to the stomach, and its serous covering partook liberally of the general peritonitis. The liver was not enlarged, nor did it contain any cancerous deposit, nor its gall-bladder calculi, but the transverse fissure was obstructed by a group of hypertrophied and succulent lymphatic glands, whose vicinity to the portal vein had, with the diffuse peritonitis, and the disorganization of the omenta, occasioned the ascites. The œdema of the lower extremities may be fairly attributed to the pressure upon the inferior cava by the retro-peritoneal mass of diseased lumbar glands which was traversed by the aorta, but had separated the cava from it at the fourth lumbar vertebra, pushing the vein forwards and to the right out of its natural position. The difficulty of the diagnosis of colloid cancer of the stomach, especially when masked by large ascites, and which has been borne testimony to both by great pathologists such as Cruveilhier, and by practical physicians such as Niemeyer, was fully exemplified in the life-history of this case, which formed no exception to the general rule.—*February 24, 1872.*

Epitheliomatous Tumour of the Vagina.—DR. KIDD exhibited a tumour which he had removed that morning in the Coombe Lying-in Hospital from the vagina of a woman forty years of age. It showed very well that peculiar formation which had given to the tumour its name—a cauliflower excrescence. It was a specimen of epithelioma, which had sprang from the os internum and extended along the posterior lip of the uterus, the whole of which it had involved, along with the posterior wall of the vagina. When he first felt it, it had a long stalk-like process running up to the os internum, and presented something of the appearance of a pear. At that time he made no attempt to remove it, in consequence of the extent to which it had engaged the uterus and vagina; but after some time the portion attached to the uterus sloughed away, and it then remained attached to the posterior wall of the vagina only. The discharge was particularly fœtid; it seemed to be exercising a poisonous influence on the patient's system, and was gradually exhausting her strength. He therefore determined to remove the tumour. He had no idea that his doing so would cure the patient, but it would very materially lessen her discomfort, and probably render the progress of the disease less rapid. The tumour was removed with the écraseur, and then the actual cautery was applied. He was, he was sorry to say, unable to remove the whole of the diseased tissue.—*February 24, 1872.*

Obliteration of the Ascending Vena Cava.—DR. JAMES LITTLE said the specimen he was about to exhibit had been taken from the body of a woman aged fifty. During life she presented very distinct and well-marked symptoms, and yet the diagnosis could only be a guess, and therefore he had opened her body with some curiosity. A year ago she noticed that first her right leg, and very soon afterwards her left leg, became swollen. At the same time when she stood up she observed the superficial veins in the right groin especially, but also in the left, became distended and stood out like cords. She also had a sensation which gave her the idea that there was some swelling or lump low down in the right side of the abdomen. This occurred about Easter, 1871, just a year ago. He (Dr. Little) saw her first in September last, and she then had these symptoms. Great swelling of both lower extremities, which were very firm and pitted very slightly on pressure. On examining the abdomen the superficial veins were seen to be remarkably full and swollen, and when she stood up for a moment the veins in the right groin stood out like thick cords. Her chief complaint was the feeling of a lump low down in the abdomen, but he never could feel any swelling there, although he made a careful examination. She had nightly restlessness, and lost appetite, and had some other less pronounced symptoms. When he first saw her she was not in hospital. He then took her in, and while under his care she continued to have the same well-marked symptoms—the swelling of the lower extremities and the swelling of the right inguinal veins, especially when she stood up; besides, she had a good deal of griping pain, and complained greatly of pain behind the inferior angle of the right scapula, and on the tip of the right shoulder. He examined her carefully, but could find nothing to account for these pains. When some time in hospital she began to complain of similar pain on the tip of the left shoulder and below the inferior angle of the left scapula. She then commenced to have slight swelling of the abdomen, but he could not detect any fluid until a short time before her death, when it was noticed, and at the same time she became jaundiced. These, then, were the symptoms—swelling of the lower extremities, turgescence of the veins, slight swelling of the abdomen, and during the last days of life the presence of fluid there; pain behind the inferior angle of both scapulæ, for which the stethoscope did not reveal any cause, and pain on the tips of both shoulders. She left the hospital and died a short time ago, but her friends permitted a *post-mortem* examination to be made. On opening the abdomen the intestines were seen much distended with flatus, and there was a little fluid in the peritoneal sac, but beyond this nothing could at first be discovered; when, however, the bowels had been removed, the ascending cava was seen tense and distended, and on

raising the anterior margin of the liver he (Dr. Little) found a very hard scirrhus tumour the size of a large orange; it was so situated on the under surface of the liver that it had completely obliterated the cava, through which a probe could not be passed; the growth had likewise contracted intimate adhesions to the under surface of the diaphragm, and on opening the right pleural cavity it could be seen projecting into it, with the diaphragm tightly stretched over it: thus were explained the swelling of the lower limbs and the fulness of the veins; the constant distension of the cava had caused the feeling of a lump in the right side of the abdomen, and the involvement of the filaments of the phrenic nerves had produced the pain in the shoulders.—*March, 1872.*

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PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*Select Clinical Reports.* By ARTHUR WYNNE FOOT, M.D., Junior Physician to the Meath Hospital.

I.—SOLITARY TUBERCLE OF THE CEREBELLUM; AMAUROSIS; LOCOMOTOR ATAXY; OCCIPITAL HEADACHE; VOMITING; TETANOID SPASMS; DEATH.

II.—LOCOMOTOR ATAXY (POSTERIOR SPINAL SCLEROSIS); DEATH FROM TYPHUS FEVER; DEGENERATION AND ATROPHY OF THE POSTERIOR COLUMNS OF THE CORD AND POSTERIOR NERVE ROOTS.

III.—LOCOMOTOR ATAXY SUBSEQUENT TO DIPHTHERIA; RECOVERY.

IV.—ACUTE TETANUS FROM EXPOSURE TO COLD AND WET; FATTY DEGENERATION OF THE HEART; RUPTURE OF A FATTY PSOAS MUSCLE; DEATH.

THE foregoing are a few of the very numerous important cases which have, during the past session, furnished ample materials for the clinical education of the practising medical pupils of the Meath Hospital. Obviously unsuited for the exhibition of brilliant treatment, they are eminently adapted for the cultivation of differential diagnosis and pathology, two of the most essential requirements of scientific medicine.

CASE I.—A grocer's porter, nineteen years of age, very pallid, and of a silly expression of countenance, was admitted into hospital 26th February, 1872. The case was given up to the care of Mr. (now Dr.) Robert S. Archer, with instructions as to the essential points to which he should especially direct his attention. The history of the lad's illness was, that thirteen months previous to his admission he began to lose his eyesight, and in the course of four months he became quite blind. Very soon after the loss of his sight he began to "get awkward on his limbs," and this awkwardness continued to increase until it became so marked that he had to keep to his bed. Of late he had vomited once or twice a week without any obvious cause, and had suffered from pain in his neck and in the back of his head. Upon examination the right side of the neck presented the scars of former lymphatic abscesses, and on both sides, but especially the right, there were many enlarged glands. He was quite amaurotic, both pupils were widely dilated; he could not perceive the light of the sun when his face was directed towards it; but he had, both by day and night, a subjective sensation of light in the eyes which he called "lightsomeness." The other special senses were unimpaired. Not being able to stand without support he used a stick, and even with its assistance "straddled" along with a staggering gait, the feet widely separated, and the heels coming first to the ground. He exhibited a remarkable tendency to fall backwards when in the erect position, and could not attempt to hop, jump, or run. The muscular development of the lower limbs was good, and he had the fullest use of the muscles, and control over their movements while he lay in bed. When desired to get up and walk across the ward, he usually had to sit a while on the side of his bed to "recover" himself. He was frequently so giddy on first rising from the horizontal position, that for a few minutes he was quite unable to stand. He experienced a difficulty in starting off and in turning round, his limbs shook under him as he walked, and in getting into or out of bed his movements were often grotesquely clumsy. His gait was not at all like that of a blind person, but very similar, with the exception of the sudden shooting forwards of the feet, to that observed in advanced stages of locomotor ataxy (posterior spinal sclerosis). He complained of weakness in the back and legs, especially in the left leg, but had no pain in these parts. There was neither paralysis of motion or of sensation, the sensibility to temperature was good; reflex excitability not excessive; the æsthiometer showed some deficiency in

the sense of touch; he could not distinguish the two points of the instrument at five inches apart in the long axis and on the inner aspect of the leg. [The minimum normal distance at which the two points of the æsthiometer can be distinguished in the leg near the knee and foot is eighteen lines.] There was nothing wrong with the bladder or rectum, or with the upper extremities. In reference to his psychical condition, it may be observed that he was taciturn and apathetic; uncomplaining, and content to lie in bed all day silent and doing nothing; he was very suspicious, and although at times he betrayed certain indications of a comic humour, he generally conveyed the impression of being dull, stupid, and fatuous.

While he was under observation in hospital—a period of twenty-six days—he mostly kept his bed; he often vomited his food, and suffered from nausea without any dyspepsia; he frequently complained of occipital headache and pain in his neck, especially in the right side. He said he could relieve the pain in the back of his head by keeping his head retracted, and that this position gave him more relief than did any of the anodyne liniments which were ordered him. He also had “fits,” of which I did not hear until the 9th of March, when I had an opportunity of observing him in one: on that morning he said he did not feel well, and I therefore did not ask him to get out of bed and take his usual walk across the ward, for the purpose of showing the class his peculiar style of locomotion. In the forenoon I found him in a convulsive seizure, lying on his left side, with his head rigidly retracted to the greatest possible degree in a tonic spasm, the face calm and pale, eyelids closed, no pulse perceptible in either wrist, his throat quite convex, the sterno-mastöidei tense, the legs fully extended; there was no trismus, nor was he unconscious, because when I pinched his cheek he called out “Who’s that? Let me alone.” The extremities were not convulsed. A galvanic battery happened to be in action in the ward, and I passed a constant current for a moment along one side of the neck; it immediately increased the spasm, and made it extend to the muscles of the back, so as to curve the whole cervico-dorsal region in regular opisthotonos. In three or four minutes the spasm passed off, and was not followed by coma, stupor, or any psychical disturbance. On a second occasion I observed the complete absence of the pulse in either wrist during one of these attacks. He said he suffered no pain in them. They became of almost daily occurrence till he died, in or immediately after one, at

three a.m., 23rd March. He had felt particularly well the day before his death, and his appetite had been so good that he made some ludicrous remarks on the subject. The following morning one of the men in his ward perceived that he had a "fit," and as it appeared to last longer than usual he alarmed the night-nurse, who found that he was dead. These attacks were never attended with noise or cry of any kind beyond an occasional low moan.

The diagnosis of cerebellar tumour was grounded upon the facts of amaurosis, locomotor ataxy, nausea, vomiting without dyspepsia, occipital headache, and convulsive seizures; the locus of the tumour was assumed to be the right hemisphere because of the greater weakness of the left leg, and the predominance of pain and glandular enlargement in the right side of the neck; the nature of the tumour tuberculous, on account of his physique, and the relative frequency of such tumours in this part of the brain. Any special treatment was considered useless, as the only form of cerebral tumour from which there is any prospect of recovery is the syphilitic, and there was no reason to believe this case to be of that nature; he had taken "quarts of cod liver oil" before his admission. Late in the case the spasmodic attacks seemed to be moderated by occasional doses of bromide of potassium.

When the body came to be examined a large tubercular mass was found in the right hemisphere of the cerebellum, there was also extensive hydrocephalus. The diseased mass encroached so much towards the upper portion of the hemisphere in which it was situated that it had involved the inferior surface of the right half of the tentorium, was adherent to it for a space the size of a shilling, and had stretched it so as to interfere with the circulation through the straight sinus of the blood conveyed therein from the interior of the brain by the *venæ Galeni*. This obstruction had given rise to "ascites of the brain," and great dilatation of the cerebral ventricles. As the brain was held in the hands, base upwards, the *tuber cinereum* was very noticeable as a prominent fluctuating swelling; limpid serum bubbled up, as if from a spring, at a point between the left side of the medulla oblongata and the left hemisphere of the cerebellum, and streamed away between the fingers as well as down along the spinal cord which had been removed in continuity with the brain; after the lateral ventricles had been opened two ounces of fluid were removed for examination, but more than twice that quantity had previously escaped from the interior of the brain. The fluid was perfectly clear, sp. gr. 1009,

contained a very minute quantity of albumen, and not a trace of sugar. The ventricles and their foramina of communication were widely dilated, and numerous large veins were conspicuous on their walls. The tuberculous mass which occupied the right hemisphere of the cerebellum was found on horizontal section to be as nearly as possible spherical, measuring in one diameter two inches, in the opposite one one inch and seven-eighths; it was of a pale cream colour, anæmic, rather firm and dry, disposed towards the centre to be friable and calcareous rather than to soften and form a cerebral vomica; it exhibited something of a tendency to a concentric arrangement, and was defined from the surrounding nervous substance rather by its consistence than by its colour, since there was a total absence of capsulation or of peripheral vascularity, but instead thereof a fillet of consecutive white softening of the cerebellum which extended downwards and inwards towards the right side of the fourth ventricle. The histological characters of the tumour were those of tubercular masses in general; there was no other deposit in any part of the brain or its membranes, so that it was an example of what is called the solitary tubercle of the brain, which, according to Cruveilhier,^a attains to a greater size in the cerebellum than in the brain, the difference being prodigious when the relative volumes of these two portions of the brain is considered. In this instance it had surpassed the dimensions of a Borsdorf apple,^b by comparison with which Virchow^c illustrates the size of large solitary tubercles of the brain. The tendency to a concentric arrangement which it exhibited also exemplified Virchow's views of the mode of enlargement of such tumours, namely, not by the growth of the original focus (granule), but rather by the continual formation and adjunction of new foci (granules) at its circumference, hence he objects to the term solitary tubercle being applied to these masses, because each such mass (tuber) contains many thousands of tubercles. The spinal cord and its membranes were carefully examined, and appeared normal in colour, shape, and consistence; the intimate structure of various parts of the cord was examined microscopically, and appeared quite healthy, so that the inco-ordination of the muscles of the lower extremities must be attributed to the condition of the cerebellum;

^a *Traité d'Anatomie Pathologique Général*, 1862. Tome iv., p. 784.

^b Borsdorf apples are very constant in their size, and measure from an inch and a-half to an inch and three quarters ($1\frac{1}{2}''$ — $1\frac{3}{4}''$) in diameter.

^c *Cellular Pathology*, 1860, p. 477.

the greater weakness of the left leg was explained by the situation of the tumour, as the influence of each half of the cerebellum is directed to muscles on the opposite side of the body. The convulsive movements which appeared towards the close of the case, and which are not present in all cases, but when so are usually late events, are attributed by Cruveilhier to the consecutive white softening of the surrounding brain substance, and are regarded by him as the ultimate phenomena in encephalic scrofula. Dr. J. Hughlings Jackson^a has observed convulsive seizures in a case of tumour in the middle lobe of the cerebellum, which, as in this case, had a strong resemblance to tetanic spasms, and he remarks that in these cerebellar convulsions the spasm is chiefly tonic, while in cerebral convulsion it is chiefly clonic, and that they were sufficiently tetanoid in their character to serve as a fragment of evidence in support of the view that the changes in tetanus are in the cerebellum. In connexion with the subject of the relation between tumours of the cerebellum and sexual irritation it is proper to observe that this lad upon his admission into the hospital sent a friend of his to inform me that he attributed his condition of blindness and staggering to masturbation. Sometime afterwards the patient himself drew my attention to the same subject, observing that he did not think I knew the cause of his illness, although he had taken means to inform me of it. I might not be inclined to allude to this matter but for the observation of Sir Robert Carswell,^b who mentions two cases of young men, from 18 to 20 years of age, who died from the effect of masturbation, in each of whom the cerebellum was the seat of a tumour as large as a hen's egg; one of them often declared that he was compelled towards the gratification of a desire which he had no power to control; he had frequently attempted the consummation of it after the prepuce had been excised as a means of prevention, and when the glans and penis were in a state of active inflammation.

The occipital cephalalgia, which is so constant a clinical feature in cases of tumour in the cerebellum, and which was so frequently complained of in this instance, is not easily explained anatomically, unless when, as in this case, the dura mater is implicated, when it may be assumed that there is a special irritation of the fifth nerve through the nervus tentorii. The frequency of amaurosis in disease of such remote parts of the brain as the cerebellum has

^a Brit. Med. Jour. 4th Nov., 1871, p. 528.

^b Pathological Anatomy, article Atrophy.

given rise to much discussion. One view explains it by structural lesion of the corpora quadrigemina and geniculata which are intimately connected with the cerebellum, and are the principal nervous centres for the sense of sight; another view explains it by disturbance of the intra-ocular circulation from pressure upon the cavernous sinus. The latter cause seems to have been in operation in this case, inasmuch as the optic nerves, tracts, commissure, thalami, and the geniculate and quadrigeminal bodies were examined, and appeared quite healthy, while on the other hand there were abundant evidences of pressure in the dilated ventricles and foramina and the bulging of the floor of the third ventricle, in consequence of the hydrocephalus produced by the obstruction of the straight sinus. It has also been observed that amaurosis due to structural lesions of the deep connexions of the optic nerves by a cerebellar tumour is usually accompanied by paralysis of some of the motor nerves of the eye-ball, whose deep origins are likewise involved in the destructive process. It is also unlikely that with a solitary tubercle confined to one hemisphere of the cerebellum the amaurosis should in origin, progress, and degree, be so strictly symmetrical as it was in this case, because when in intracranial tumour one optic nerve only, on the cerebral side of the commissure, is affected, half blindness of each eye is observed. It is very much to be regretted that an ophthalmoscopic examination was not made, as Græfe has indicated, the means thereby of deciding whether the amaurosis is the result in such cases of destruction or pressure.

CASE II.—*Locomotor Ataxy (Posterior Spinal Sclerosis) affecting principally the Right Arm and Left Leg; Death from Typhus Fever; Atrophy of the Posterior Nerve Roots and Atrophy with Grey Degeneration of the Posterior Columns of the Spinal Cord.*

This case is of interest, inasmuch as anatomical proof is offered of the genuine nature of the disease. In an affection so essentially chronic it is rather unusual to have an opportunity of examining the pathology of a well-marked example. Romberg gives the average duration of the disease as from ten to fifteen years; Jacoud from six to eight years. Dr. Radcliffe^a observes that among nineteen cases of locomotor ataxy which he has had under observation he has not yet had one *post-mortem* examination, and so cannot say that in this sense any of his cases are as yet complete. Of

^a Syst. of Medicine, R. Reynolds, Vol. ii., p. 340.

ninety-one patients affected with sclerosis of the posterior columns of the spinal cord (locomotor ataxy) which have been under Dr. Hammond's^a charge during the last six years, three only, as far as he is aware, have as yet died.

A retired serjeant of police, aged 34, height six feet three inches, weight fifteen stones, married, and father of four children, was admitted into hospital 21st March, 1872, and placed under the charge of Mr. Henry Mallins, who investigated the details of the case with extreme care and accuracy.

His object in coming to the hospital was to get some advice about the state of his lower limbs and right arm. The previous history was that he had been employed on active service in the Liverpool police from 1857 to January, 1872, when he was discharged with a pension as unfit for duty. His parents and his brothers and sisters had all been healthy people, and he himself had always enjoyed good health until he had an attack of lumbago about seven years previous to his admission. About a year and a half after that attack he for the first time perceived a "numb feel" in his right leg, from the knee to the toes; this he attributed to his having slept in a damp bed. Shortly after he had first observed this numbness in the right leg he got some inflammatory swelling of the right foot, for which leeches were applied; the numbness then left the right leg and went to the left leg, where it has since remained. His duties obliged him to be much exposed to night air, cold, and wet during the severe winter of '66; about this time he married, and he considered that the numbness in the left leg increased after this event. Some time afterwards he began to lose command over his legs; for example, four years before his admission he was standing speaking to a friend in the street when he suddenly fell to the ground on the broad of his back, "as if shot with a gun:" he was both ashamed and surprised at this occurrence; it happened again three or four times afterwards, from his knees suddenly giving way under him. Nine or ten months before admission he began to notice a failure of power in the index and middle fingers of the right hand, especially when he was writing; these fingers used also get numb, and he was accustomed to slap them with his left hand, as he found this restored their "right feeling" to them: the numbness also prevailed over the back of the hand, and extended a few inches upwards along the back of the forearm. Six months ago his officer, observing his staggering

^a Hammond on Diseases of the Nervous System, New York, 1871, p. 494.

mode of walking, said, "Holloa! Serjeant, you havn't been drinking?" He had always been a most temperate man, and, as I had reason to know, bore the highest character for energy, sobriety, and intelligence. Three weeks before he came to hospital, fresh and more alarming symptoms of disturbance in the functions of the right hand occurred; he found he could not move his fingers properly, could not wind his watch, had lost "the feeling" in the tips of his fingers, could not pick up a feather, and miscalculating weights, used to jerk up light articles with unnecessary force; these new symptoms he attributed to having slept with his right arm resting on the edge of the bed. His unsteady gait now led to his often being looked on as intoxicated; he was obliged to pick his steps very carefully; he could not now cross a brook upon familiar stepping stones without missing the aim of his feet, and slipping in; a walk of two miles became the most he was able for, although formerly most active and athletic. He began to use a stick within six months before he came to Dublin, his spirits also have become depressed, and from having been "a determined man" he had become "quite nervous," making deep involuntary sighs, from hearing which one day in the street a gentleman stopped to inquire if he was in any trouble.

Condition when admitted.—He was a large, strongly made, muscular man, presenting no anomaly in his digestion, circulation, or respiration, with the exception of the involuntary sighings just referred to. Sight good; no ptosis, strabismus, or diplopia; pupils normal; conjunctivæ uninjected; occasionally has muscæ volitantes. The fundi examined with the ophthalmoscope appeared quite healthy. Hearing in the right ear was good; in the left there was tinnitus aurium and intermitting deafness. Sexual feelings subnormal—they have been decaying since this affection commenced; there is no history of syphilis, or of any previous libidinous excesses,^a legitimate or illegitimate. No pain, tenderness, or sense of heat along the spine, or feeling of constriction round the body. Bowels habitually costive; a slight delay about the commencement of micturition. The right arm and the left leg are the limbs most affected. He cannot shake hands properly, because when he stretches out the hand to do so, it becomes flexed and pronated from weakness of the supinators and extensors, so that, instead of presenting the palm, he offers the ulnar border of the dorsum of

^a See Laycock in Dublin Quarterly Journal, May, 1869, p. 257.

the hand. His writing, which used to be excellent, has become (even that of his own signature) almost illegible from want of control over the movements of the fingers. He holds the pen pressed deeply into the angle between the metacarpo-phalangeal articulation of the thumb and the radial border of the index metacarpal bone, all the fingers being meanwhile doubled up into a mass. Although he is right-handed, the strength of his right hand, as measured with the dynamometer, is but 33 kilos, while that of the left is 44 kilos. He has a difficulty in opening and shutting the right hand, and in buttoning his clothes; is slow and clumsy in picking up any small articles, and has had to give up winding his watch and shaving. Sensibility to temperature is obtuse in the right hand; metal taken out of water heated to 160° Fahr. can be held in this hand, while it cannot for a moment be held in the left. The deficiency in muscular sense is established by the observation, that a four-ounce weight in the right hand feels lighter than a two-ounce weight in the left. Sensibility to pain, tested by pricking, equal in both hands, but the conduction of the sensation was slower in the right arm. Tactile sensibility rather obtuse in both forearms and hands; the two points of the æsthiometer cannot be distinguished when less than an inch apart on the palm of the left hand, and when less than two inches on the ulnar side and back of the left forearm, and cannot be felt at all on the radial side. Over the metacarpal bone of the right thumb the points cannot be discriminated when less than an inch apart, but on the thenar eminence they can at a quarter of an inch. [The minimum normal distance at which the two points of the æsthiometer can be distinguished on the palm of the hand is five lines, and over the metacarpal bone of the thumb, four lines.] He has no pains or feeling of pins and needles in the upper extremities, and complains chiefly of the numbness in the fingers and back of the right hand, and of the disadvantages he is under from the disobedience to his will of the hand and fingers.

As to the functions of the lower extremities, although their muscular development was excellent, he could not stand with his eyes closed, or with his feet together, toe to toe, whether his eyes were open or not; could not get out of bed in the dark, or walk during the day without the support of a stick, or having hold of some stationary object; he could not attempt to run, hop, or jump. When asked to describe what it was that prevented him standing with his feet closed up together in the "ataxy position," he

sometimes said it was not from giddiness, but "from having no command of his left leg, it was useless from the knee down;" at another time, that "the ground goes from under him." When pressed to explain what he meant by the ground going from under him while he was looking at it, he said he felt "as if the floor was going down," "as if he was standing on a trap-door" or "on a cloud." When he set out to walk across the ward with the assistance of a stick, after some preliminary difficulty about starting. his gait had the precipitate staggering character of locomotor ataxy; the feet were kept wide apart, and the heels came down with a stamp; he did not shoot out the feet, as in the more advanced stages; he could not turn round without first stopping to balance himself, and then he wore slowly round, instead of pivoting on his own axis; after a short walk he feels very tired, his legs feel heavy, and as if they had been beaten; he finds it less difficult to come up than to go down stairs. He complained of "a feeling of numbness" in the left leg, most marked at the inner side of the knee, and extending thence along the anterior aspect of the limb to the toes; it is also very marked over the external malleolus. He has "no command" over this leg from the knee down; "it feels like lead;" it is of lower temperature than the other leg, and he has had flannel drawers specially made, to try and keep it warm. Its sensibility to temperature is increased; metal heated to 110° Fahr. applied to it is felt as hot as metal heated to 140° Fahr. applied to the right leg. Sensibility to pain seems normal in both lower limbs. Tactile sensibility normal in the right, obtuse in the left leg, especially over the anæsthetic parts, the two points of the æsthiometer, at these places, not being distinguished at four inches (the minimum normal distance being eighteen lines). He had darting pains in the lower extremities, principally in the left leg, and at night compared to "the stab of a dagger" or "an electric shock." These pains shoot downwards, set out from the hips, are worst in damp weather, severe while they last—which is sometimes a few minutes, sometimes several hours—and are most felt at the knee, outer ankle, and great toe of the left leg. Occasionally, when these pains are very severe, he has felt such a "burning heat" in the left great toe, that he has poured cold water upon the toe, to cool it. He suffers from cramps in the calf of the left leg, has a tightened feel about the tendons behind the left knee-joint, and sometimes the sensation of "pins and needles" in the toes of both feet.

The treatment which was adopted immediately after his admission was daily galvanism of the spinal cord, with a current from a Smee's battery; a maximum amount of nourishment; fifteen drops twice a day of the liquid extract of ergot of rye, and attention to the action of the bowels. The tendency to constipation was very marked, and he was always better when his bowels were free. The following prescription answered his purpose remarkably well:—

℞. Ex. nuc. vom., gr. iij.

Pil. col. co., gr. x.

Sulph. quin., gr. xxiv.

Ext. al., gr. xxiv.

Ext. rhei., gr. xxiv.

Ft. mass. pill. div. in pill. xxiv.—one to be taken daily.

His progress was apparently very satisfactory, as the following observations, carefully made, tend to show. He also sent home to his wife cheerful accounts of his improvement.

24th March.—He feels “braced up and strengthened” after the employment of the galvanic current.

25th.—Feels the numbness in his leg going away; can pick up small articles with more precision and rapidity; can completely extend the ring and little fingers of the right hand; tactile sensibility of the upper extremities, measured with the æsthiometer, improved.

28th—Can now shake hands in the ordinary way; draws attention to a marked improvement in his writing; increase in strength of his grasp; power of the right hand (mean of three trials), 35 kilos; of left (mean of three trials), 53 kilos.

31st.—Feels his right hand “as strong as ever it was.”

1st April.—Flexes and extends his right forearm vigorously, and strikes out forwards with great satisfaction to show how strong he has become. The improvement in the legs does not correspond with that in the arms. He was very sensitive to the galvanic current, especially along the left side of the spine; he could not bear a current of thirty cells, even with dry electrodes—twenty and twenty-five were the numbers generally employed. With a current of this strength the skin reddened quickly, and a galvanic taste remained in his mouth for some hours after the operation. The positive pole was kept in the neighbourhood of the cervical vertebræ; the negative pole was moved up and down along the lower part of the spinal column, the circuit being frequently broken; each daily application was for fifteen minutes; a sensation

used to remain afterwards in the back as if he had been cupped along the spine. From the improvement in the upper limbs and the absence of ocular symptoms, it was inferred that the upper part of the cord was not hopelessly damaged, as the ocular symptoms do not occur when the degeneration exists below the cilio-spinal centre—the upper dorsal region of the cord. The condition of the lower part of the cord was presumed to be much more serious.

On the 2nd of April he was seized with a rigor which proved to be the initial symptom of a severe typhus fever on the 13th day, of which he died. The principal features of this fever were constant bilious vomitings at the commencement; copious, early, deep-coloured eruption, soon becoming petechial; paralysis of the bladder and tympanitis from the 10th day; albuminous urine.

On the 8th day the strength of each hand was equal—29 kilos; before this day it had been observed that when either wrist was taken for the purpose of feeling the pulse, the forearm and hand became pronated and twisted inwards towards the trunk, as if he was taking the hand away from you; he explained that this apparent reluctance to let his pulse be felt was involuntary, and that he could not help it. Ptosis of the right eyelid came on 24 hours before death, the immediate cause of which was rapid bronchial effusion. The maximum temperature was six hours before death, at which time it was 106° Fahr., with respiration 52, and pulse 132, very weak, irregular, and intermittent.

The urine was carefully examined in the laboratory of the hospital, once before the fever and twice during the fever, and the analyses contrast in a remarkable manner.

No. 1.—Urine of 29–30 March = 24 hours, total quantity = 31 fl. oz. acid; colour a clear brown; precipitate after 24 hours, slight, cloudy, consisting of mucus, epithelium, and some urate of soda; albumen, not a trace; sugar, not a trace; urea, 20 grs. per 1,000 grs. urine, or total quantity, 271·55 grains; phosphoric acid, 1·88 grs. per 1,000 grs. urine, or total quantity, 25·49 grains.

No. 2.—Urine of 11–12 April = 24 hours, total quantity, withdrawn by catheter, = 52·5 fl. oz. acid; colour, reddish-brown, opaque; spec. grav. when filtered, 1017; precipitate after 24 hours, copious, consisting of epithelium and urates; albumen copious; tyrosine and leucine abundant; sugar, not a trace; urea, 31·5 grs. per 1,000 grs. urine, or total quantity, 755·015 grains; phosphoric acid, 1·68 grs. per 1,000 grs. urine, or total quantity, 41·267 grains.

No. 3.—Urine of 13–14 April, = 24 hours, total quantity,

withdrawn by catheter, = 62·5 fl. oz.; acid; colour, deep reddish-brown; spec. grav. when filtered, 1016; precipitate after 24 hours, copious, as before; albumen abundant; urea, total quantity, 820·310 grains; phosphoric acid, total quantity, 41·015.

Post-mortem examination.—The profusely maculated body was still warm eleven and a half hours after death. All the cavities and organs were examined as usual, but it is unnecessary to refer in a special manner to any except the spinal cord. Externally the theca vertebralis presented no anomaly; on slitting open the dura mater spinalis the blood vessels on the *anterior* aspect of the cord appeared to be fuller and more numerous than usual; if this congestion were due to hypostasis it could only have occurred during the very short time the body was lying on the face, while the cord was being exposed, as previously it had been lying since death in the usual dorsal position. It might be said that from the peculiar fluidity of the blood in typhus it would rapidly gravitate, *post-mortem*, into dependent parts, but I am disposed to think this congestion of the anterior aspect of the cord was not hypostatic, but the result of the greatly interrupted circulation in the spinal vessels on the posterior aspect of the cord, in consequence of numerous adhesions between the different membranes along the back of the cord, that it was in fact a development of collateral circulation. Along the front of the cord the dura mater was separable as usual from the arachnoid, but posteriorly all along the lower dorsal region the two membranes were more or less closely united by lymphic adhesions. The inner surface of the dura mater was notably vascular all along this part of the cord, its hyperæmic condition thereabouts contrasting strongly with the absence of visible vessels upon its inner surface above and below this region. The pia mater here was also, as well as the arachnoid, much thickened, opaque, granular, and firmly adherent to the cord. I could not satisfy myself of the presence of the posterior spinal arteries, as they were not traceable among the matted together membranes. Throughout the dorsal region the posterior half of the cord felt softened, and appeared shrunken and pale, very pale as compared with the anterior half. The posterior nerve roots of the lower half of the cord were plainly atrophied, grey coloured, and from the many dilated and half empty vessels accompanying them they looked more like thin strings of congested cellular tissue than nerves. In the fresh transverse sections of the lumbar and lower dorsal regions the grey degeneration of the posterior columns was as plain to the

naked eye as possible, the contrast in colour between the front and back of the cord being almost as well marked as that between the cortical and medullary portions of the brain. In the transverse sections the discoloured part was wedge-shaped, the base of the wedge towards the pia mater; the degeneration was most marked in the lumbar region, it disappeared to the naked eye towards the upper part of the dorsal region, but in subsequently hardened sections the disease was discoverable with the microscope even high up in the cervical region.

In detailing this case the conventional term "locomotor ataxy" has been employed because it is that hitherto in general use, but it can never signify more than a prominent symptom of the disease, and is, moreover, a symptom observable in other very different affections, such as alcoholism, cerebellar tumour, and diphtheritic paralysis affecting the lower limbs. I cordially agree with Professor Hammond^a in the propriety of adopting a name for this disease, derived from its pathological appearances in well-marked cases, such as posterior spinal sclerosis, and have here introduced it from a wish to assist in the emancipation of complex and obscure diseases from a symptomatic nomenclature. The condition of the spinal cord in this case precluded all hopes of recovery, at least so far as the parts supplied from the lumbar cord were concerned; the improvement in the condition of the parts connected with the more recently affected regions of the cord was marked. As a remedial agent I know of nothing so useful in the early stages of posterior spinal sclerosis as the constant current; it cannot, however, work miracles, and to be beneficial, the cord and nerves must be susceptible of repair, not wholly degenerated, the current must be used with diligence and patience, and this special treatment always supported with phosphorus, cod-liver oil, and, if much congestion, ergot of rye. A very well educated medical man who has been under my care for this disease, and in whom it has existed ten years, but seems to have been arrested by the use of the constant current, phosphorus and oil, has expressed his belief that if some of the numerous medical authorities whom he consulted in the early stages, when the disease was not obvious, had only asked him to stand with his eyes shut and thus detected the disease in its remediable stage, and that then the constant current had been employed he would have been cured. His remarks have led me to direct my

^a Diseases of the Nervous System, 1871, p. 484.

attention to the incipient symptoms of this formidable disease, because I believe they require only accuracy of observation and appreciation of their nature to be recognized and understood as soon as complained of. Such a study must, however, be well matured before its results could be regarded as trustworthy.

CASE III. *Locomotor Ataxy subsequent to Diphtheria; Recovery.*

A private servant (coachman), aged thirty-one, height five feet ten inches and a-half, weight ten stone six pounds, married and father of children, was admitted into hospital 22nd March, 1872, and put under the care of Mr. (now Dr.) Charles A. M'Munn. The circumstances which immediately led to his coming into hospital were as follows:—His mistress, observing with regret that the man appeared, from the unsteadiness of his gait, to be frequently under the influence of drink, asked the medical attendant of the family to advise her what to do about him; he was a most respectable and trustworthy servant, of irreproachable character, and he had never been seen to drink. The doctor sent his son to see the man, and he reported that the man did not drink, but was, in his opinion, suffering from some spinal affection, and recommended him to be sent to hospital at once; this was accordingly done. When the history of the case came to be investigated it was ascertained that the man got a severe wetting at the Fairyhouse races, 10th April, 1871, which resulted in “a heavy cold” and “sore throat,” which sore throat was followed by dysphagia and regurgitation of fluids through the nostrils; his food used also to “go the wrong way,” and cause coughing. These symptoms occurred a fortnight after the “cold,” and when he considered himself cured of it. An habitual perspiration of the feet and ankles became suppressed at this time, and had since remained so. For the next ten months or so he considered himself quite well; but when the proper inquiries had been made it came out that within that time he had observed a marked diminution in sexual power; also, that in descending stairs or steps his feet “were inclined to give way,” and he often tripped, slipped, or missed his footing: sometimes, also, when attending at table he tramped so heavily in walking about the dining-room, that he incurred the censure of the butler, and he was unusually awkward in holding or handing plates or dishes; he also for some time suffered from amblyopia. So far he had been able to perform his duties as coachman very well, frequently driving four-in-hand; but three weeks before admission he got another heavy wetting, not,

however, followed by "cold." A week afterwards he was on a ladder outside the house cleaning windows, at a considerable height from the ground, when, feeling giddy, he got off the ladder and went into one of the rooms, where he fell on the floor; after that he got a "numbness" in both hands, and could not "feel things rightly with them;" he became hardly able to write, the pen slipping away from between his fingers because he could not feel it. 16th March he was riding a spirited horse to the post, when he remarked that he could not feel the bridle in his hands, and fearing the animal might break away from him he got down and walked, leading the horse there and back. About the same time he found he could not feel the footboard of the carriage box, and began to stagger so much in his gait that passing through a village early on the 17th of March the idlers approvingly observed, to his great annoyance, that he had lost no time in commemorating the anniversary of the patron saint. This titubation was, as before mentioned, the immediate cause of his coming into hospital.

When examined upon admission his heart was free from apparent disease, and its action not slower than usual, but evidence of weak circulation was present in his very purple hands and feet, which in cold weather, and when he has been at rest for some time, became quite livid. He walked in a staggering and unsteady manner, could not run, jump, or hop, although he used to be very active on his feet, and had won a flat race of 150 yards before the "cold" in 1871. He had noticed his power of running to fail during the present year, and had observed that such exercise put him out of breath, and brought on palpitations. He said he could not now jump half a foot off the ground, and in trying to leap over a small bag of plaster of Paris laid on the floor before him, he came down with one foot in the middle of it. He could not get out of bed in the dark, nor stand steadily with his feet together, toe to toe, in the ataxy position, with his eyes shut, because, as he said—"the ground goes from under him," or "gives way under him," he feels "as if he was on a spring," or "on soft turf," or "on a feather bed." None of these similes were in any way suggested to him, nor were any leading questions used to elicit the information sought for. When he stood with his feet apart, and was supported on either side, the ground felt quite steady under him. A numbness extended over the feet, and to a short distance above either ankle, occupying the tract which had been the situation of the habitual sweating, now almost a year suppressed.

Both his hands were "numb," the left more so, and he was awkward and slow in the execution of such digital movements as buttoning, writing, picking, and holding. The numbness was principally on the backs of the hands, and did not extend above the wrists; the æsthiometer showed the deficiency in the sense of touch to be greater on the dorsal aspect of the right hand than of the left, the two points were first appreciated at one inch five lines, in the axis of the limb, on the former, and at one inch on the latter. The mean power of the right hand was 40·66 kilos, of the left 52·00 kilos, this sinistral pre-eminence he accounted for by his having "a strong left hand" from the constant pull on that hand in driving, much of it, however, was due to actual deficiency in the right hand, as was afterwards shown by its restoration. He has muscular twitchings in both hands and legs, no pains or cramps except a painful feeling of weakness across the back of the left hand in the line of the metacarpo-phalangeal articulations. He had some difficulty in guiding food on his fork to his mouth, could not put the index finger of his right hand to the tip of his nose with the eyes shut, either quickly or with certainty of aim, he misses the mark at the first offer, but can hit it off better with the left forefinger. Sense of touch impaired in the left hand, sensibility to temperature normal in both. His articulation had become affected within the three days prior to his admission; he spoke with a hesitation, clipping his words; he thinks his tongue and lips are swollen, and that this is the reason he "speaks thick;" the tongue deviated slightly to the right side when protruded; there was no obliquity of the uvula or dropping of the soft palate, the pillars of the fauces were a little redder than natural, no alteration in tone of voice, he could pronounce all the vowels distinctly. The right pupil was larger than the left one, which was of normal size; it responded to light, but was sluggish in its movements. With the ophthalmoscope the margins of the disk in the left eye were ill defined, the disk congested, and the veins very tortuous; sight in both unaffected—no ptosis, strabismus, diplopia, or congestion of the conjunctivæ. The functions of the bladder and rectum were undisturbed, there was not constipation, nor belt-like sensation round the body, nor albumen in the urine. Pain "in the small of the back" was complained of, its anatomical locus was found to correspond with the spinous process of the first lumbar vertebra.

Treatment and Progress.—At first the case was regarded as one of structural rather than functional disturbance of the spinal cord,

as the history was not fully investigated, nor the clue of the remote attack of diphtheria traced until he had been some days in hospital. Meanwhile he was ordered fifteen drop doses, three times a day, of liquid extract of ergot of rye, because I had observed the good results of this medicine in congested conditions of the cord. 25th March, a galvanic current from thirty cells of a Smee's battery was passed along the back for fifteen minutes with moistened conductors, the positive pole was applied over the fifth cervical vertebra, the negative moved about over the lumbar vertebra; this current was not felt, nor did the conductors redden the skin. 26th, he remarked "that he had more power in his hands." 28th, can stand more steadily with his eyes shut; the lumbar pain is gone; a current of fifty cells was used in the same manner as before, he scarcely felt the negative pole, and it only slightly reddened the skin. 29th, finds he "can write much better," stands more steadily, current of fifty cells used. The same strength of current applied in the same manner to the previous case of locomotor ataxy was quite unbearable, thirty cells being the most he could at any time bear, although a much larger and more muscular man. 30th, his friends observe upon his improved appearance; current of forty cells used. 31st, the habitual perspiration in the feet re-appeared for the first time. 1st April, the ergot was discontinued, and $\frac{1}{64}$ th grain of strychnia ordered twice a day; galvanism to the spine continued. 2nd, able to put his food into his mouth with his left hand. An analysis of his urine was made to-day. Urine of 1st and 2nd April (24 hours), = 34 fl. oz. acid; spec. grav. (filtered) 1027; turbid from abundance of pale urates; no albumen; urea 31 grs. per 1,000 grs. urine, or total quantity = 461.12 grains; phosphoric acid 3.48 grs. per 1,000 grs. urine, or total quantity = 51.76 grains. 4th, able to take a walk of eight miles without fatigue, while out he tried to run, but one foot got in front of the other and threw him down. 7th, can button and unbutton his clothes without looking at them. 9th, can feel any small thing, such as gravel, under his feet with his boots on. 15th, fifteen drop doses of the tincture of per-chloride of iron, ordered three times a day, in addition to his strychnia. 16th, the numbness has quite left his hand, he can balance himself on his toes, the habitual perspirations of the feet are quite re-established. 19th, went back to his situation for the day, in order to drive the carriage, a pair of horses being required for a particular occasion which he was afraid to trust with the man who was acting for him in his absence; he was able to manage the horses very well.

23rd, his weight is found to have increased seven lbs. since his admission, he is now 10 st. 13lb. The dynamometer indicates with the right hand 59·66 kilos, with the left, 53·33 kilos, showing an increase of power, in the right hand of 19 kilos, and in the left, of 1·33 kilos. 25th, he returned to his situation; a slight hesitation and clipping of his words remained, which I thought would be likely to disappear more quickly under the influence of country air and sea-bathing, both of which were at his command, than under any form of treatment in hospital. I have since heard that he is "as well as ever."

Without claiming any active curative effect for galvanism in this case, it is proper to observe that he became more sensitive to it as his health improved, and that he expressed himself as "refreshed after it as if he had had a bath." It was used daily during his stay in hospital, and for fifteen minutes at a time; the number of cells employed varied from thirty to fifty; the current was always applied to the spine with moist conductors, the positive pole placed in the cervical region, the negative pole over the lumbar vertebræ. The dilatation of the right pupil first directed my attention to the possibility of a diphtheritic origin of his symptoms, as the opposite condition of the pupil is that most frequently observed in true locomotor ataxy (posterior spinal sclerosis), but I might not have attached sufficient importance to this point but for having had the advantage of reading an article by Dr. Grainger Stewart^a "On Two Cases of Diphtheritic Paralysis simulating Locomotor Ataxia," in which he sums up the points which ought to be borne in mind in making a differential diagnosis, as follows:—

1st. The history of sore throat in the diphtheritic affection, contrasting with that of sharp, shooting neuralgic pains, and other prodromata in progressive locomotor ataxia.

2nd. The existence of throat paralysis, indicated by nasal tone of voice and by dysphagia, especially of fluids, occurring only in the diphtheritic.

3rd. The dilated pupils and paralysis of accommodation not occurring in any excepting the diphtheritic.

4th. The suddenness with which, after diphtheria, the ataxic symptoms become developed.

^a Edin. Med. Jour., May, 1870, p. 988.

5th. The gradual super-addition of paralysis of cutaneous sensibility and of motion.

It is hardly necessary to observe how different the prognosis in the two cases would be, and that the tendency to recover is as marked in the diphtheritic, unless grossly neglected, as the tendency to get worse is in the posterior spinal sclerosis. In the case reported above the ataxic symptoms were developed at a late period subsequent to the diphtheria, for they did not attract much attention until ten months after he had suffered from dysphagia and regurgitation. The original affection was of a mild form, so much so that recollection of it was almost lost when its consequences become so alarming. This is in accordance with general experience in the paralytic sequelæ of diphtheria, and is parallel with what is observed in the case of the scarlatina poison, that the mildest cases are generally those which subsequently give rise to the most troublesome consequences. It is also noteworthy in connexion with his rapid recovery that strychnia agreed well with him, as it notoriously does in diphtheritic paralysis, whereas it is by many regarded as positively contra-indicated in true locomotor ataxy, an opinion with which, from trials of it in several cases, I entirely agree. Diphtheritic locomotor ataxy, according to the observations of Cæstel and Buhl, is dependent upon diphtheritic infiltration (cell proliferation) in the sheaths of the nerves and between the fasciculi, as well as among the ganglion cells of the sensory nerves. The beneficial effect in diphtheritic paralysis of galvanism of the spine, through the influence of the constant current upon the trophic nerves, could be explained in accordance with the above pathological facts, although to some it might appear strained. It is enough to know that diphtheritic locomotor ataxy is very likely to disappear during the use of galvanism and small doses of strychnia, and the enjoyment of fresh air and rest.

CASE IV.—*Acute Tetanus from Exposure to Cold and Wet; Fatty Degeneration of the Heart; Rupture of a Fatty Psoas Muscle; Death.*

A gardener, forty-eight years of age, five feet seven and a-half inches in height, weight twelve stones, was admitted into hospital on the afternoon of Wednesday, 3rd of July, 1872, and put under the special care of Mr. George Whittaker, one of the clinical clerks. He had been unavoidably exposed to much cold and wet during the

inclement weather which characterized the previous month. When admitted he was in the fifth day of his illness, and he died on the seventh day, fifty hours after his admission. The disease commenced insidiously, his first complaint referred to a stiffness in his tongue, noticed on the night of Saturday, 29th June. Upon his admission he had a drop of croton oil, rubbed up with butter, put upon his tongue, as his bowels were confined. When I saw him on the morning of Thursday, 4th July, he was lying on his back with the body arched, hands and forearms flexed and strongly supinated, the legs extended, head retracted, and neck stiff, face flushed, eyes injected, skin perspiring with a strong sour smell, belly very tympanitic, jaws approximated so that the tongue could not be protruded, and giving a hissing sound to his rapid breathing, alæ nasi widely dilated, and the tetanic expression very marked. The temperature of the axilla was 102° Fahr., respiration 36, pulse 104: action of the heart not excited, nor presenting the short, sharp wring usually observable during its systole in tetanus. His mind was quite clear, but his speech almost unintelligible from the closure of the jaws and a want of power in the expiratory muscles. He complained of great thirst and of pain in the back, and asked me to give him "something to make him sleep," and "something to keep up his strength." Following up these indications he was given at once forty grains of chloral, and ordered ten ounces of wine, as much strong beef-tea as he could be got to take, brandy and egg mixture, arrowroot and milk, and means were taken to darken the ward and exclude all sources of peripheral disturbance. He fortunately had a gap in the teeth at the side of his mouth, which proved favourable for feeding him through. Immediately after the dose of chloral he fell asleep, and with short intervals of waking had, before noon, a "a right good sleep." While asleep and for a short time after waking the trismus relaxed, and he could speak much more plainly. He said the spasms did not pain him; he could swallow well, but did so slowly and cautiously. He accounted for his want of sleep before admission, saying that whenever he was dropping asleep the spasms used to come on and waken him. At three p.m. he had thirty grains of chloral, and the same quantity again at six p.m.; turpentine stupes were kept to the abdomen to relieve tympany. At six p.m. his temperature was 99·6 Fahr., respiration 34, pulse 134. At ten p.m. he had thirty grains of chloral, but very little sleep after it; his bowels were once acted on in the night by a second dose of croton

oil; there was apparently some difficulty occasioned by spasmodic action of the sphincter ani. Friday, 5th July, at 7.30 a.m., he had thirty grains chloral; at nine a.m. temperature 101° Fahr., respiration 28, pulse 120. He observed to me, and repeated his remark to the nurse, "that he was near off." Having noticed in several cases of tetanus that a presentiment of impending death is an almost fatal sign, I was much dismayed to find it present, as I was not yet prepared to despair of his recovery, having seen apparently worse cases get well. All efforts were made to keep up his strength; at one p.m. he had thirty grains of chloral, which tranquillized him, but did not make him sleep. The urine of twenty-four hours 4th-5th amounted to 30 fl. oz., was very acid; spec. grav. 1024, contained no albumen, a very large amount of uric acid; urea, 41 grs. per 1,000 grs. urine; or total quantity urea = 538.125 grains; phosphoric acid 2.8 grs. per 1,000 grs. urine; or total quantity phosphoric acid = 36.750 grains. The large amount of uric acid was no doubt due to imperfect oxidation on account of the fixity of the muscles of respiration. During the afternoon the difficulty in swallowing and the frequency of the spasms increased; at 5.30 p.m. he was about to die, pulse 150, weak and thready, the eyelids almost closed, and the eyeballs pressed inwards, as if from spasm of the muscoli orbiculares; respiration 57, loud and laboured, the thorax as immovable as an iron chest, the diaphragm and some of the cervical muscles alone acting; hardly able to swallow. Three minutes after his death I put a thermometer into the left axilla, and the index marked 106.4° Fahr. The trismus did not pass directly into rigor mortis, because I watched the jaw drop as he died; it slowly closed up again, and then dropped a second time, and remained so for at least a quarter of an hour that I continued to observe; however, before an hour had elapsed the masseter muscles were examined by Mr. Whittaker and found to be quite rigid, and the mouth firmly closed.

Post-mortem Examination.—Eighteen hours after death the corpse wore a grim smile, the angles of the mouth were drawn upwards and backwards, and curved lines arched thence to the alæ nasi. The body was not arched, neither rigor mortis nor hypostatic lividity were more marked than is usual after sudden death. Along the middle line of the back were a number of indigo-coloured petechiæ. The extensor muscles of the spine were dark red and rather dry; the dorsal aponeuroses were covered with arborescent vessels. The rachidian plexuses were not fuller than

usual; the theca vertebralis white and shining; neither congestion, effusion, thickening, or adhesion were observable in connexion with the membranes of the cord. The posterior spinal veins over the lower half of the cord were distended, but not more so than would result from hypostasis. The substance of the cord was of natural consistence, but the colour of its white parts was in places decidedly pinker than usual; the increased vascularity could be seen distinctly when a thin section was held up against the light on a slip of glass. The nerve cells of portions of the grey matter connected with anterior roots were microscopically examined and appeared quite normal. Every portion of the brain was examined: its surface was congested, and there were evidences of chronic irritation of the two outer coverings. The heart was large, weighing, empty of coagula, twelve oz.; it was of a brownish-drab colour, soft, flabby, and greasy to the feel; not tight, tough and hard as a cricket-ball, as I have found it in other cases of tetanus; its structure gave way under firm pressure with the finger; the cut walls collapsed, and bright oil globules ran out with the muscle blood. The right auricle was full of black blood; the right ventricle held a coagulum, cream-coloured, on the outside, black inside, passing unbroken into the pulmonary artery; the left cavities were empty; all the valves natural. A piece of the muscle of the left ventricle examined with the microscope showed the characters of the chronic form of fatty degeneration in the smallness of the droplets of oil and the fineness of the molecular debris; the amount of breakage was extraordinary from the fragility of the fibrillæ, whose transverse striæ were mostly obliterated and replaced by rows of fat globules. The liver was limp and greasy, of a pale drab colour, and weighed 3 lbs. 4 oz.; the large gall bladder, $5\frac{1}{2}$ inches long and $2\frac{1}{2}$ inches broad, though of a light orange colour externally, was filled with a thin red-brown bile, and contained no calculi. The stomach and intestines formed a voluminous mass distended with gas which extinguished flame; the lower half of the colon contained fœcal matter more or less hardened. The right psoas muscle was torn across in its intrapelvic portion, and was blackened from blood extravasated among its fasciculi; when the peritoneum was raised off it the softened and disintegrated fibres could be mashed up into a paste between the fingers. Almost the whole muscle was pale, soft, and pulpy, while the opposite muscle was much redder and firmer. The microscopic characters of a portion of the ruptured muscle were

those of a more acute form of fatty degeneration than the muscle of the heart presented, the droplets of oil and the molecules of debris being much larger.

This acute case of tetanus was one in which the disease was attributed to exposure to cold and wet, a cause next in frequency to wounds as an exciting agent in man, and one which produces often in animals, horses especially, the most severe and rapidly fatal attacks. The mortality in such cases, often called idiopathic—an expression not to be understood as convertible with spontaneous or causeless—is quite as great and sometimes exceeds that in traumatic tetanus, as in India when the death-rate of idiopathic tetanus has been calculated at 76 per cent., and of traumatic tetanus at 72 per cent. The degenerated condition of the heart and other organs must have been a very serious complication in this case; the rupture of the psoas muscle in itself was a condition which would have led to a state of things from which he could hardly have recovered had he outlived the tetanic attack. The recti abdominis are the muscles usually ruptured in tetanus, but Dupuytren^a observed this accident in the muscles at the back of the neck, and Mr. Henry Earle in the psoas.^b In the unsettled state of opinion upon the medicinal treatment of tetanus I know of no better principles of treatment than those which were indicated in the patient's own request for "something to make him sleep" and "something to keep up his strength," and this view is fully borne out by Sir Thomas Watson, who in the latest edition of his lectures (1871) remarks: "In all cases, there being no special indications to the contrary, I should be more inclined to administer wine in large doses and nutriment than any particular drug." Had nicotine been used in this case—a treatment about which it may be said as it may of atropine, opium, and the ice bag—that some cases get well and other cases die where it has been used, I fear it would quickly have paralysed the weakened fatty heart. To chloroform also the state of the heart would have been a great objection, and yet I was rather inclined to use it from having seen its wonderful palliative effects in a case in which for my lamented master, the late Maurice Collis, I kept up its influence for eight hours, and in which the patient seemed to die overwhelmed in a cumulative spasm which occurred in consequence of a delay in procuring a fresh supply of chloroform. It is also

^a Leçons orales, tom. v., p. 107.

^b Med. Chir. Trans. vol. vi., p. 96.

worth noting that it appears from a recent valuable report on tetanus^a that up to the present chloroform has yielded the largest percentage of recoveries in *acute* tetanus, and this report embraces cases treated with Calabar bean, Indian hemp, ether, opium, tobacco, quinine, aconite, turpentine, purgatives, stimulants, bleeding, mercury, icebags, amputation, cold effusion, and division of nerves. The view now gaining ground in very high quarters, and for which good arguments can be adduced, that tetanus may be due to a temporary abnormal condition of the blood, and that the microscopical changes in the cord are the consequence, and not the cause, of the disease, also indicates the use of chloroform as a means of saving the strength till the violence of the symptoms has blown over. Although the state of his heart forbade the use of chloroform I did not think that chloral in moderate doses, for the purpose of procuring sleep, was contra-indicated, for the following reasons:—the action of the nascent chloroform or chloral is considered by those most conversant with physiological chemistry to be different from that of ordinary chloroform vapour, and certainly appears to be so in practice; the quantity of chloral taken was not sufficient at any time to paralyse the heart; he always expressed himself as relieved by the effects of the doses; the author of a prize essay on the action of chloral presented to the Medical Society of Lyons (1872) finds that the action of chloral and strychnia are antagonistic, and this fact is certainly, by inference at least, not an objection to its exhibition in tetanus.

ART. V.—*Surgical Contributions.* By P. J. HAYES, Surgeon to the Mater Misericordiæ Hospital, Dublin.

I.—CASE OF CALCULUS IN THE MALE—LITHOTOMY—RECOVERY.

J. C., aged 24 years, unmarried, was admitted to hospital on the 17th of March, and placed under my care.

Previous History.—When about 14 years of age he suffered, during a period of five days, from very severe pain in the loins, extending to the inguinal regions. He was so ill, as to be scarcely able to move, but obtained relief from hot stupes and warm hip baths. Since that time he enjoyed good health, and was constantly employed as a field-labourer, until the early part of 1870, when he

^a New York Medical Journal, Nov., 1870, p. 419.

began to feel a frequent desire to pass water, and the act of micturition was followed by pain, especially referable towards the glans penis. Those symptoms abated under rest and medical treatment, but whenever he drank, or was exposed to wet and cold, they became aggravated. He noticed, also, that when passing water, the flow would sometimes suddenly stop, and the urine seemed turbid, especially when the last drops were being voided. Towards the end of February, in the present year, and consequent upon drinking and exposure to cold, his sufferings became greatly intensified, and his alarm was excited by the dark and bloody appearance of the urine.

State when admitted to Hospital.—He seemed a well-nourished, healthy young man; but it could be seen that he was nervous, excitable, and timid. His pulse, though strong, was rather quick, being about 84 per minute; tongue clean; bowels generally confined. The urinary symptoms have been previously stated, and examination of the urine revealed the presence of blood, pus, and altered epithelium. On the day following his admission, I introduced a sound, and at once detected the existence of a calculus. From examination I concluded that the stone was attached to the anterior wall of the bladder; that its surface was very rough and irregular; and by gently moving the point of the sound from side to side, I estimated the diameter at probably about one inch and a quarter. I stated my opinion that the calculus was composed of oxalate of lime; that owing to its being attached, of large size, and hard substance, no attempt at lithotrity ought to be made, particularly as the patient was of very excitable nervous constitution; and I was confirmed in this view by the fact, that such irritability of the bladder existed as prevented the retention of either urine or injected water during the process of sounding. Believing that careful exploration with a lithotrite could not be productive of injury, and might possibly enable me to set free and accurately measure the stone, I introduced such an instrument, but was not able to dislodge or grasp the calculus. I then explained to the patient the nature of the operation I considered advisable, and recommended him to rest for a few days whilst reflecting whether he would submit to the proposed treatment.

The man decided to return to the country, and consult his friends. So for a week or ten days I heard nothing of him. One morning, however, he returned to hospital, saying, we ought to have *forced* him to submit to whatever we thought proper, and

expressing regret for having gone to the country, as, after the railway journey, he became much worse, though previously he could drive, run, or jump, without pain or marked uneasiness. It was apparent that he was now suffering from a considerable degree of vesical irritation and some urinary fever; therefore he was kept in bed, ordered quinine and opium, together with a milk diet, and soda water, kali water, or effervescing draughts, according to his fancy. In a short time he became much better, was allowed to sit up, and a tonic mixture, consisting of chloric ether, tincture of perchloride of iron, and infusion of calumba, was prescribed. In consequence of the sudden aggravation of symptoms, I formed the opinion that the stone had become detached during his journey to the country; but the indications for its removal by lithotomy seemed so evident to my colleagues, as well as to myself, that no other proceeding was thought of.

On Wednesday, April 24th, I performed the lateral operation, Mr. Tyrrell holding the staff well hooked under the pubic arch. The patient resisted the action of chloroform, and once or twice, when the knife was in the groove of the staff, he struggled a good deal, bearing down in such a manner as to cause me considerable anxiety lest the anterior wall of the rectum should be injured.

The only difficulty I experienced was in grasping and withdrawing the stone, which I had to extract slowly and with great care, for its surface was covered with large projections, which would have lacerated the neck of the bladder and prostate gland had the forceps been removed otherwise than with extreme gentleness. There was no hæmorrhage, so I introduced a simple tube and had the patient placed in a warmed bed. I also directed that he should have an opiate draught, which was to be repeated in case he complained or became restless.

On the following morning he seemed to be progressing favourably, and as the wound was free I saw no objection to removing the tube. Moreover, being very doubtful concerning the safety of the rectum during his struggles on the previous day I determined to satisfy myself by placing one finger in the rectum, whilst with the other hand I withdrew the tube from the wound. In this way I ascertained that there was a small opening, through which I could feel the side of the tube. This wound, of very limited size, and situated but a little above the internal sphincter, did not give cause for much uneasiness.

The patient suffered from sickness of stomach and nervous

depression, but was able to take a good share of milk and to rest fairly. On the second day after the operation he was ordered a few draughts, each of which contained one drop of creosote, one of tincture of aconite, and three or four of ether. Nausea, heat of surface, and rapid pulse diminished after the draughts had been taken, and excepting an occasional dose of castor oil and a tonic mixture, no additional medicine was given during the period of convalescence.

By the fourth week urine was largely passed through the urethra, but some continued to be discharged by the wound until the sixth week. The patient rapidly gained strength, and as the wound in the rectum never caused the least inconvenience, I entertained the hope that the healing of the perineal wound might not be retarded. This, however, was not so, as by the beginning of July there still existed a small aperture, through which a little flatus occasionally escaped, and therefore I determined to operate for fistula, *in ano*. I did so on the 10th July, and found the internal opening so small that it would barely give passage to the director. After division of the sphincter oiled lint was introduced, and the small wound soon healed completely from the bottom.

The calculus was a typical example of the mulberry or oxalate of lime; it weighed 150 grains; its longest diameter slightly exceeded an inch, its shortest was a fraction under an inch. Dr. Cruise kindly made a section of it, and gave me the particulars respecting size and weight; the cut surfaces present the usual agate-like markings.

II.—CASE OF OVARIAN TUMOUR—OVARİOTOMY—DEATH FROM EXHAUSTION 46 HOURS AFTER OPERATION.

E. B., aged 36, admitted to the Mater Misericordiæ Hospital, July 18th, 1871, suffering from an abdominal tumour.

Previous History.—Has been married for six years. Never became pregnant; enjoyed regular health until last January, when she felt cutting pain in the left iliac region, and then noticed a small hard swelling where the pain commenced. This was tender when subjected to pressure, and in spite of leeching, painting with iodine, and rubbing-in of various liniments, the swelling and pain steadily increased. The catamenia were always regular, but since the beginning of her illness profuse and continue for eight days at a time. Aggravation of the pain proceeds and continues during the menstrual period.

On examination I found a well defined tumour occupying the left iliac, the hypogastric, and lower portion of the umbilical regions. The tumour felt very tense, firm, and elastic, but I had no hesitation in stating my opinion, that it was a thick-walled ovarian cyst, containing fluid, and that the great pain complained of was in some measure due to tension of the strong fibrous wall. I also expressed my belief that adhesions probably existed about the pelvic extremity of the tumour.

The patient was pale and weakly, consequent upon pain, loss of rest, and a certain amount of menorrhagia, therefore she was ordered to take plenty of nourishment, iron with chloric ether and calumba, and chloral draughts whenever suffering deprived her of sleep. In time she regained strength and a tolerably healthy aspect, so I explained to her my view as to the nature of the tumour, stating that the very serious operation of ovariectomy might afford a chance of perfect recovery, but I left the selection altogether to herself. During the autumn she was seen and examined by some very eminent obstetricians, who discovered slight anteflexion of the uterus, but some of those gentlemen, though they inclined to my view of the case, were doubtful as to whether it might not be a uterine tumour. The majority of my colleagues coincided in opinion with me, as also did Dr. J. A. Byrne.

The patient in the meantime expressed her wish that the operation should be performed, but I determined to wait until her condition should be such as to demand interference, then to render diagnosis positive, by puncturing the tumour with an aspirateur, and should no ill result ensue to perform ovariectomy about a month or six weeks after the tapping, when any new and imperfectly organized adhesions consequent upon the paracentesis might be broken through with the hand. The period for adopting this course arrived on November 6th, when I punctured the tumour and drew off some ounces of dark-coloured viscid fluid, sp. gr. 1028, which under the microscope showed blood corpuscles, large cells undergoing fatty disintegration, and others resembling altered epithelium. Though the patient derived immediate relief after the abstraction of enough of fluid to reduce the tension of the cyst wall, yet about six hours later pain was complained of in the left iliac region, but this diminished under the application of flannels wrung out of hot water and sprinkled over with laudanum.

There was an interval of ease until November 9th, when pain and swelling of the left leg and foot appeared, which later extended

to the thigh, accompanied by enlargement and tenderness of the inferior inguinal glands. The treatment now consisted in stuping the limb well with hot water during the first four days, smearing over the inguinal region a mixture of equal parts of belladonna and mercurial ointments, and subsequently rubbing into the whole length of the limb, the liniment of iodide of potassium and soap, covering the surface with a thick layer of cotton wadding, and applying over that a moderately tight bandage. The pain soon ceased, and by the 24th all swelling had subsided. About this date the old pain in the tumour returned and increased during the next menstrual period, which commenced on the 28th, and continued during five days, instead of eight.

It was now decided that ovariectomy should be performed on the 18th of December, and the patient, though cautioned of the great risk, said, "If she was only to live for two hours after the operation, she would take the chance." The preparations for and mode of performing the operation so closely resembled the description given in the report of my former, and happily successful case,^a that I shall avoid repetition, and briefly state the peculiarities in this instance. The quantity of fluid drawn off amounted to but eleven pints; the sufferings of the patient, rather than the bulk of the tumour, having determined the time for operation.

The tumour was everywhere adherent, but most of the adhesions were of recent formation, and all gave way, more or less readily, before the gradual and careful pressure of the fingers. The cyst wall varied in thickness from five lines to fourteen lines, and instead of being pedunculated, it seemed almost sessile upon the left margin of the uterus. During the separation of its anterior surface from the abdominal wall, I found a comparatively short, strong cord, representing the remains of the urachus; and as this had caused depression of the umbilicus, some of the gentlemen who had previously examined the patient believed that very strong, old adhesions existed about the superior extremity of the tumour. Whilst freeing the uterine end of the cyst, I discovered the presence of a small subperitoneal fibroid tumour on the anterior wall of the uterus. As it felt to be only the size of a small bean, I noticed it no further, but proceeded to expose and secure the base, rather than the pedicle, of the cyst. It was clearly impossible to apply a clamp or other extra-peritoneal means for

^a See Dublin Quarterly Journal of Medical Science, November, 1871.

compressing the vessels, because the cyst wall was so thick, it could not be made to act as a pedicle; therefore it was determined to transfix, and doubly ligature with strong catgut, the base of the growth, including the remains of the ovary. Not only was this done, but before the tumour was cut away, a second catgut string was strongly tied behind the part first secured; then the base was cut through, and most carefully examined, for if a drop of blood issued, I was prepared to apply the actual cautery. As the broad surface remained perfectly clean, the ligatures had been knotted with the greatest care, and that to bring the hot iron in contact with the cut surface it should be carried within the abdominal cavity, I did not employ it, but cut the ends of the ligatures a few lines from the knots, released the stump, and stitched together the edges of the abdominal wound.

As pain was experienced after the operation, a draught, containing half a drachm of Battley's solution, was at once administered, and a second ordered to be taken later, should the distress continue. Thirst being complained of during the afternoon, iced champagne was given in small quantity every hour; also a little milk and soda water occasionally. At six o'clock, an enema, consisting of the yolk of an egg, three drachms of brandy, and three ounces of the strongest beef-tea, was administered and retained. The catheter was used at 4 p.m. and at 10; six ounces of urine being withdrawn on the first occasion, and four ounces afterwards. The skin was very moist with perspiration during the evening; the pulse 125; pain had subsided; and a chloral draught secured sleep for a few hours during the night.

Next morning the pulse was 150, very weak; temperature, 99.2; urine drawn off very high-coloured, quantity rather small; skin perspiring profusely at times, but cool and clammy to the touch. As the patient disliked milk, and asked for champagne, she was ordered a tablespoonful or two of the strongest beef-tea every second hour, a glass of champagne hourly, with occasionally the addition of a teaspoonful of brandy. At noon, and again at 7 p.m., nutritive enemata were given, each containing the yolks of two eggs, nearly an ounce of brandy, and six ounces of strong beef-tea. Her condition became gradually worse. About midnight she was very weak, but rallied somewhat after another enema, and at 2 a.m. fell into a kind of slumber, which lasted little over an hour. At 6 a.m. the pulse became exceedingly feeble, and the skin covered with cold sweat; consequently an enema was again given, followed

by faint improvement; then, in spite of every care, she continued to sink, and died tranquilly at 10 a.m., forty-six hours after operation.

The *post-mortem* examination was made by my resident pupil, Mr. John Ryan, whom I have to thank for the following particulars, as well as for many notes of the case during the period between the operation and death.

The autopsy, made within eight hours after death, revealed the presence of half a pint of bloody serum in the pelvic cavity, also a coating of coagulated fibrine upon the cut surface of the pedicle; many dark brown spots upon the parietal and visceral layers of the peritoneum, marked the portions where vascular adhesions to the tumour had existed; the serous membrane in the vicinity of, and opposite the abdominal wound, was of yellowish white colour, interspersed with the brown patches already mentioned. The knots on the ligatures remained perfect, but the cat-gut had relaxed a little, in the presence of the surrounding moisture. The bloody serum found in the pelvis must have resulted in part from oozing of some blood through the cut surface of the pedicle, and in a less degree from small vessels existing in the extensive adhesions which had to be broken through at the time of the operation. I believe the slight oozing had ceased long before death, and that had the poor woman possessed a more vigorous constitution, she would have tided over, at least, what was in this instance the cause of death, namely, shock and exhaustion, consequent upon an operation which required free opening of the abdominal cavity, and introduction of the hand for the purpose of breaking through extensive peritoneal adhesions. I believe those extensive, and, in a great measure, recent adhesions, resulted from puncturing the cyst, a proceeding to which I was opposed, and would not have adopted, only that some doubt was entertained by high authorities respecting the correctness of my diagnosis. Besides the fibroid, detected during the operation, two others of smaller size were found on the right side of the uterus, but the right ovary was free from disease. The uterus, tumour, &c., have been preserved in the museum of the Hospital.

III.—MODIFIED PISTOL SPLINTS FOR THE TREATMENT OF COLLES'S FRACTURE.

Surgical ingenuity has been taxed in providing a variety of means for treating fracture of the lower extremity of the radius,

yet I venture to offer an addition to the already lengthy list. The apparatus I have devised consists of a pair of pistol splints, one of which being longer than the other, is for application on the dorsal or extensor aspect of the forearm, and is divided in an almost transverse direction at a point which, when the splint is applied, would correspond to the radius immediately above the wrist-joint, a hinge, fastened along the ulnar border of the splint, secures, what I shall call, the hand portion to the forearm portion, and by means of a screw, the hand portion can, if I may so express it, be pronated considerably.

The palmar or shorter splint also possesses a hand portion hinged to a forearm portion; the line of division between them is, however, much more oblique (from the radial edge downwards and inwards) than that in the dorsal splint, so that the lower end of the forearm piece would, when *in situ*, reach a point about two inches above the inferior extremity of the radius; the hand portion of this splint can also be caused to undergo pronation by the movement of a screw. In Colles's fracture there is usually more or less supination and abduction of the hand, consequent upon displacement of the lower fragment of the radius, and in order to correct such, and, at the same time, bring the fractured surfaces into fair apposition, the splints I have attempted to describe, are to be carefully padded, adjusted, and strapped upon the forearm and hand, then by simultaneous movement of both screws, pronation and abduction of the hand can be effected either rapidly or gradually as the surgeon may desire.

Messrs. M'Adams and Corcoran show, in the Dublin Exhibition, splints copied from a rough model made by me; some slight modifications are, however, required to make them accord fully with my ideas.

The splints are so constructed as to be applicable for either forearm, and need not be kept on the limb for a period longer than a fortnight after the fracture, as some union will have taken place by that time, and then a simpler means for giving support and protection may be substituted.

On Preliminary Clinical Instruction. By W. HANDSEL GRIF-FITHS, Ph.D., L.R.C.P., L.R.C.S., Edin.; Assistant-Librarian Royal College of Surgeons in Ireland, Member of the Surgical Society of Ireland, &c.

THE recent introduction of a clinical element into professional examinations adds another to the many reasons which might be urged for a reformation in the present method of conducting clinical instruction. I desire in this paper to confine myself solely to the consideration of elementary teaching, meaning by this term such instruction as should be afforded to the student on his introduction to hospital work; it will form no part of my plan to allude to the higher grades of clinical education, or the subject of original work, more especially as this has been so ably and so recently done by that great clinical teacher, Dr. Stokes.^a

That a necessity does exist for an altered mode of early clinical teaching is hardly controvertible. Is it not a fact (and is not the fact a pitiable one) that, with few exceptions, a student's first session at hospital is all but utterly wasted, and that at the close thereof he is almost as ignorant as at its commencement? Having "perambulated" the wards, having literally but "walked the hospital," he will be found on interrogation to have acquired little else than a confused remembrance of words which to him are well-nigh meaningless; he will be found to be wholly unimbued with that habit of exactitude of observation which it should be our first object to inculcate, and, if he is an honest, earnest student, he will be dissatisfied with himself, and disheartened at the magnitude of the work that lies before him. It may be said that if the time is thus so utterly wasted, the fault lies at the door of the student. With all due deference I do not think that this is always so. The student, in the majority of cases, comes to us directly from a school in which his studies have been directed and controlled, and in which, moreover, his intellectual faculties only have been exercised, while the education of the senses and of his perceptive faculties has been unattempted. It is, I think, not to be expected of such youths that without personal guidance they should derive much profitable instruction from unsystematic clinical utterances at a multitude of bed-sides. Nor would I lay the fault at the door of

^a On some requirements in clinical teaching in Dublin, read before the Medical Society of the King and Queen's College of Physicians, Nov. 16, 1870.

the clinical teachers; it would be too much to expect that the valuable time of a practising physician should be expended in the drudgery of demonstrating the rudiments of the art of auscultation, or in elementary delineations of clinical topography, or in experimental lessons on the chemical examination of the urine, &c., and yet if this does not constitute the duty of hospital teachers, whose is the duty, and how are the students to learn these things?

In my official capacity, and in the fulfilment of my duties as a private teacher, I am daily thrown into intimate contact with students, and in writing on this subject, while I do so with the utmost diffidence, I claim to speak with the authority of one who has carefully availed himself of ample opportunities of fathoming the requirements of the student.

Having stated the proposition that a necessity does exist for a reformation in the mode of preliminary clinical teaching, it behoves us to consider how this reformation had best be effected. Would not the requirements be fully met by the appointment on the staff of the hospital of a Clinical Demonstrator whose duties should be to instruct the junior students in the outlines of external anatomy or clinical topography; to demonstrate the use and construction of the appliances for the recognition of physical signs; to illustrate by preparations and by recent specimens, when possible, the broad outlines of morbid anatomy and pathology; and to indicate the association between physical signs and alterations of structure. For the due fulfilment of these functions it would, I think, be desirable that the clinical demonstrator should have no part in the treatment or care of the hospital patients; his office should be solely and absolutely tutorial, and this, if he performs its duties conscientiously, being a laborious one, he should be untrammelled by any other hospital duty.

Now let us briefly review the advantages which would accrue from the adoption of the foregoing suggestion. I contend that the advantages would be fourfold—

First, the hospital funds would be benefited, for I think that it may confidently be predicted that students would flock in unprecedented numbers to that hospital which would best fit them for the crucial practical tests to which happily they will henceforth be subjected.

Secondly, the hospital staff would be benefited in having as clinical clerks those who could follow with intelligence their directions and instructions, and furthermore they would have the

satisfaction of knowing that their audience was an appreciative one, no longer an unsympathizing crowd of perambulating machines.

Thirdly, the students would be benefited in receiving a fair first impression of their chosen profession, in the profitable employment of valuable time, in fitting themselves to profit by the future ward-teachings of the physicians, in thoroughly preparing themselves for practical examinations, and in receiving intimate tuition in those subjects without a knowledge of which no man can now claim to be an educated physician.

Lastly, and not least, the patients would be benefited, inasmuch as the physician would then have more time at his disposal for attending to their greater ills, while their minor troubles would be ministered to by those who, in the capacity of clinical clerks, would bring to their aid a by no means despicable amount of educated discrimination and intelligence.

That any valid objections can be urged against my suggestion I cannot think. I know that in making this proposal, which I have done with intentional brevity, I have been actuated by a sincere desire to urge nothing that would clash with existing interests, and I believe that if my proposal be carried out it will be found to enhance rather than detract from these. There is one thing certain and that is, that the practical nature of future examinations will necessitate an increased amount of clinical instruction, and the hospital which neglects to provide this will inevitably lose ground as an educational institution.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

1. *Lectures on the Principles and Practice of Physic delivered at King's College, London.* By SIR THOMAS WATSON, Bart., M.D., F.R.S., Physician in Ordinary to the Queen, Fellow and late President of the Royal College of Physicians in London. The fifth edition. Two volumes, 8vo, pp. 910 and 1070. London: Longmans, Green, & Co., 1871.
2. *The Science and Practice of Medicine.* By WILLIAM AITKEN, M.D., Edin., Professor of Pathology in the Army Medical School. Sixth Edition. Two volumes, 8vo., pp. 944 and 1290. 1872. Charles Griffin and Co.

WE have now been ourselves engaged for several years in teaching the principles and practice of physic, yet we have risen from the perusal of these Lectures with almost as much satisfaction as we experienced many years ago, when from the pages of an earlier edition we first acquired an idea of the nature of morbid processes and an intelligent conception of the physical examination of the heart and lungs. Books are in more senses than one like food, that is not always the best food for a man which contains absolutely the largest amount of albumen and fibrin, but that out of which his assimilative apparatus will easily extract the greatest quantity, and so some books contain vast collections of information, out of which the laborious and the clever are able to extract it, but prove of little value to those who are less patient and less gifted, while others present the subjects of which they treat in such an inviting shape and with such clearness and precision that readers of ordinary intelligence can carry away every idea presented on their pages. Such books are of inestimable value, and judged according to this method no work on the principles and practice of medicine

has yet approached in merit Sir Thomas Watson's Lectures. Our own experience has taught us that if students are baffled in their first effort to obtain a distinct conception of a pathological process, or of the rationale of a physical sign, they are very prone to set it down as one of those things "which no fellow can understand," and having acquired a familiarity with the terms used in connexion with it, so that they can talk about it, they often seek no fuller knowledge, but if, on the other hand, the subject is presented to them in such a manner that the main facts connected with it can readily be understood, their interest is aroused, they feel that it is something within their comprehension, and they are induced gradually to master all its details. It is in this fashion that the symptoms and signs and nature of disease are described in these lectures, and on this account no teacher of medicine, no medical library, and above all, no library intended for students, should be without a copy of them. So great have been the advances in our knowledge during the past fourteen years (when the fourth edition appeared), that it was necessary considerable alterations and additions should be made in the work, and we find it has been on most questions so amended. The observations of Hughlings Jackson, Bastian, Lockhart Clarke, Charcot, and Vulpian on cerebral disease; the researches of Niemeyer, Sanderson, and Wilson Fox on tuberculosis and phthisis; of Johnson on renal diseases; of Hayden and Gairdner on mitral stenosis are clearly and succinctly described. Sir Thomas Watson, who has received from his Sovereign, from his College, and from the Universities of his country all the honours they could bestow, has taken the trouble to read and digest the works of his younger professional brethren, and with the modesty of genius, is content to describe himself as the "mere expositor" of the views of men, some of whom were yet in the nursery when he was an accomplished physician and teacher.

The student making his first acquaintance with disease should read the lectures before us. It is by no means, however, to him alone they will prove useful, the hospital physician will derive no small advantage from their perusal. While the author has so far modified his directions as to treatment as to render them much more in accord with the views of the present day than with those taught twenty years ago, he nevertheless still claims, and justly claims, we believe, a place for the lancet among remedial measures, and refuses to discard a therapeutic resource which, however it has been needlessly and harmfully employed, yet serves in some emergencies to rescue a

patient whom nothing else could save. Educated in the old school, long a teacher of the doctrines of the old school, as Sir Thomas Watson was, the younger men among us will do well to treasure up some of his maxims, and the elder may well modify their views as to bleeding and mercury and blisters when they learn the place they now occupy in his practice; his directions for their use in pneumonia we gladly quote, as we know that the two last are still often employed with singular impropriety in that disease:—

“Years have passed by since I have met with any instance of that disease which has required phlebotomy. In this special case, not only must you decline to be guided by the mere name of the disorder, you must not be guided even by the *thing, pneumonia itself*, as disclosed by the evidence of auscultation. The general or constitutional symptoms must direct the treatment, while the local signs identify the disease. The question must always be, what detail of treatment will soonest bring this particular case to its best possible issue?

“When, with the physical evidence of pulmonary inflammation, you find your patient breathing with extreme labour and difficulty, and you notice at the same time the tokens of enormous venous congestion, the veins of the head and neck turgid with dark blood, while the pulse is very feeble as well as frequent, you may conclude that the right side of his heart is so distended with blood as to be unable to contract, and you must take blood by venæsection, with the chance of so saving your patient’s life, and with the certainty of prolonging it, and of giving immediate relief to his exceeding anguish. But I do not advise you to push the bleeding beyond the advent of this manifest relief. I believe this to be the only accident of pneumonia that requires or warrants a recourse to general blood-letting.

“Again, if at the outset of the illness there is sharp pain in the side, announcing the presence of *pleuro-pneumonia*, you will do well, especially if the patient’s health have been previously sound, to apply cupping-glasses or leeches over the painful spot: and you need have no dread, in my opinion, of ultimately damaging him by this local diversion and removal of blood.

“Diaphoretic medicines are, in all cases, proper and serviceable: and in the severer forms of pneumonia I would recommend you to adopt the treatment by *antimony*, as directed by the Italian physician Rasori; but I would limit and regulate that treatment in accordance with the rules laid down by Dr. William Gairdner in his instructive volume on ‘Clinical Medicine.’ They are simply these: to give the antimonium tartaratum in doses varying from one-twentieth of a grain to one grain, every

hour, withdrawing or suspending the remedy as soon as it produces any distressing effect on the patient—continued vomiting, purging, or great general depression; withdrawing it also as soon as the fever appears to have received a decided check. I said *continued* vomiting, because a single act of vomiting may be beneficial. After that the stomach is generally found to *tolerate* the drug, as our Continental brethren express it.

“I should add that this antimonial treatment is chiefly useful and fit for the very early stage of the disease, when the skin is hot and dry, and the expectoration scanty and viscid.

“It will be right in the commencement of the disease to administer for once a mercurial purgative—two or three grains of calomel, for instance, with ten or twelve of rhubarb. But multiplied experience has at length wrought a widespread belief that to give mercury in this disorder, with the view of exciting ptyalism, is not commendable practice.

“Among what may be called the routine remedies of pneumonia we must rank counter-irritation by means of blisters; but they are often applied to the chest much too early in such cases. In the outset, while there is yet considerable fever present, they add to the irritation, and distress the patient, and tend to aggravate the existing inflammation. But when the fever is no longer high, and the skin no longer burning, though the expectoration is still difficult, the dyspnœa considerable, and a sensation of pain, or tightness, or oppression is experienced in the chest, then a large blister is often productive of very sensible benefit; but it should *be* a large one. The patient should have a waistcoat almost, or at any rate a breast-plate, of blistering-plaster. I have never seen such good effects from placing blisters upon distant parts in this disease, upon the thighs or arms for instance, as would lead me to plague the patient with them in those situations.

“What I have said of blisters applies to the other methods of stimulating the surface. Take a case in illustration. A worthy physician, a friend of mine, suffering in his own person an attack of pleuro-pneumonia, was persuaded, against his better judgment, to lay a mustard-poultice to his painful side. The pain, as soon as the mustard began to tell, was increased to a pitch that was scarcely endurable. He had the mustard removed, and the part (after it had been washed) covered with leeches; with the speedy effect of bringing ease to his suffering, as decided as had been its previous aggravation. The proper appliance under such circumstances is a soft and warm *linseed*-poultice.”

Had Sir Thomas seen the relief immediate, safe, and often lasting which the hypodermic injection of morphia gives to the sharp pain in the side, we believe he would often dispense even

with leeches and cupping glasses. In the management of inflammation of serous sacs, the peritoneum, the pleura, and the pericardium he no longer uses mercury, with the object of producing its specific effect, though in combination with squill and digitalis (the well-known Baillie's pill) he sometimes employs blue mass as a diuretic, with the intention of removing effused serum:—

“In this case,” says he, speaking of pericarditis, “as in many others, the hope which I once cherished, that the inflammation could be controlled by the constitutional influence of mercury has faded away. Pericarditis has been known, not seldom, to spring up while the patient was already under mercurial salivation. I am obliged, therefore, to recant the advice which I was formerly in the habit of giving in respect of mercury as a remedy for acute pericardial inflammation. I recommend you to abstain from giving it with the view of obtaining its peculiar effects upon the gums and the general system. But I should never scruple to prescribe it with other aims; and especially for its tendency to quicken and promote the action of some diuretic remedies.”

Against that most objectionable of all routine practices, the application of blisters during the acute stage of pleurisy and pericarditis, he enters his strong protest, as he also does in directing us how to treat tonsillitis, another inflammation in which vesication is still most unnecessarily, and to our mind improperly, employed by some practitioners.

It is easy to account for the rapidity with which successive editions of Dr. Aitken's Text Book have been exhausted. Since the issue of the second edition the work has consisted of two volumes, and in them is to be found a larger amount of material, collected from the best sources, than exists in any other work on the science and practice of medicine. The present edition contains much new matter, and a large portion of it has evidently been re-modelled and re-written. Dr. Aitken is not himself engaged in caring the sick, and his directions as to the treatment of disease are adopted from the works of the various physicians who are recognized as authorities, but he has in nearly every case reproduced their views with care, fulness, and accuracy; it is, however, in describing morbid appearances, in presenting a general view of the scattered facts which go to form our notions as to the intimate nature of pathological processes, and in giving a comprehensive account of general questions connected with pathology and medicine that he excels. We have gone carefully through

a large portion of both volumes, and find that he has, in preparing the great majority of the articles, availed himself of the most recent works; when many years ago we noticed the second edition, we gave it as our opinion that his directions as to treatment were hardly in accordance with the practice of our best physicians; this edition is not at all, or only to a very limited degree, open to that objection, in it are quoted often the very words of our best practical physicians. As the production of a single man the book is truly a marvellous one, the defects in it are such as are inseparable from a work which is, in great part, a compilation, and in which an effort is made to give faithfully the facts and views of others, and not merely the conclusions which those facts and opinions have left on the mind of the compiler, a necessity is thereby created for presenting the subject sometimes under one aspect and sometimes under another, and it is often impossible to state the facts in that orderly sequence which is permitted to an author who has arrived at definite conclusions, and seeks to lead his readers up to them by his own arrangement of the facts; the student must read some of Dr. Aitken's chapters several times over before he will master their contents, but then he will be well repaid for his trouble.

We have said it was in discussing general questions of pathology and practice that Dr. Aitken excelled; as examples of this we would refer to his rules for making thermometric observations and for drawing conclusions from them, to the chapters on the various degenerations to which the tissues are liable, and which play such an important part in the production of individual diseases, to the account of scrofula and tubercle, and of the pathology and propagation of cholera, and as an illustration we quote in full his chapter on the general principles which dictate the treatment of the febrile state:—

“To avert the tendency to death in the febrile state, it is necessary to observe how fevers naturally terminate favourably. Four modes are enumerated by Dr. Parkes, namely:—

“1. *By crisis*, in which the temperature falls suddenly in a few hours, and usually with some abundant excretory discharge, in which, possibly, much of the water which has been retained in the system is poured out.

“2. *By lysis*, in which the fall of temperature is gradual from day to day, till the normal standard is attained. The decline may thus occupy many days, the thermometer being known to take seven days in falling from 102° to 98° Fahr.

“3. *By a combination of these two modes*, namely, by a sudden fall of

temperature to a certain point, and then a gradual decrease to the normal heat.

“4. *By a somewhat irregular alteration of febrile and non-febrile periods, as shown by the temperature and the issue.*

“When *fever* terminates by any of these modes, convalescence commences, normal nutrition is renewed, and the body begins to gain in weight. The blood is poor in albumen and in red particles; and there is now a danger that the rapidity of metamorphoses of tissue will exceed the healthy standard, as shown by the great tendency to loose heat, which convalescents from fever have. The temperature may fall, and the excretions may diminish below their healthy amount. Great care, constant attendance and watchfulness are required when the patient begins to convalesce, if the fever has been long and severe; and the treatment of the febrile state itself may be thus generally stated as consisting in a combination of measures,—(1.) To reduce excessive heat; (2.) To insure sufficient but not excessive excretion and elimination of the excretions; (3.) To act restoratively on the exhausted and semi-paralysed nerves; (4.) To neutralize any specific poison which may have set up the fever, and so to improve the state of the blood; (5.) To relieve distressing symptoms; and lastly, To obviate and counteract local complications (PARKES, MURCHISON).

“(1.) *To reduce excessive heat.*—To accomplish this, the first indication, Dr. Robert Jackson, ‘the patriarch of Military Medicine,’ and after him Dr. Currie, of Liverpool, in 1797, practised to an extreme degree the application of cold water—a therapeutic agency which is now again challenging attention, so that Medicine, like History, constantly repeats itself. Jürgensen, Liebermeister, Hagenbach, and Kuchenmeister, are the most recent advocates and exponents of the application of cold water in the treatment of fevers. In health such an application tends to increase the metamorphoses of tissue, as shown by Lehmann and Sanderson; and therefore its use in the febrile state requires the greatest care and caution. It is interesting to notice that Kuchenmeister confirms the accuracy of Currie’s own observations. To be of use, it must be employed very early in the fever before the third or fourth day. As soon as the temperature rises above $102\cdot5^{\circ}$ Fahr., or higher (104° Fahr.), the treatment by cold bath is to be commenced, and continued as long as the temperature remains so high. The effect and object of the bath is to lower the temperature—a lowering which does not reach its minimum immediately after the use of the bath. Hence the great caution required in its use. The diminution of bodily heat appears to be largely due to the excitement of skin transpiration—a condition brought about when the bath has a favourable influence. If the skin be moist and perspiring, the use of a cold water bath is not required.

“Among the many different ways of applying cold water in fevers, Küchenmeister gives the preference to Currie's *cold effusion*—the patient merely sitting in an empty tub, and having from four to six buckets of cold water (40° to 50° Fahr.) poured over him, from a height of about two feet. This form of administration is especially useful where cerebral symptoms are severe, with depression of the motor energy of the brain and cord, threatening paralysis of the heart, or severe degrees of bronchial complication with passive collection of large quantities of thick secretion in the tubes. In the unconsciousness of ‘sun stroke’ it is thus useful. If the sitz or shallow bath be used, the patient must have his whole chest, front and back, well rubbed with towels till the skin becomes red, as he sits in the tub. It has been so used with benefit at an early period of *enteric fever* and *scarlet fever* (*The Practitioner*, July, 1869, p. 45). The frequent and careful use of a thermometer for determining the temperature of the patient's body is required as affording the only correct measure of the severity of the fever. ‘It is as necessary to the physician as the compass is to the mariner at sea.’

“Sometimes the patient may be laid bodily in a bath of temperature of about 95° Fahr., which is gradually cooled down to 86° Fahr. or 77° Fahr.: as patients get stronger the bath is used colder and colder—77° or 68° Fahr. After the immersion, lasting from three to fifteen minutes, or even an hour, and regulated by effects as indicated by the thermometer, the patient is dried at once and put to bed and covered as usual; and if the feet are cold, warm bottles, or a hot brick enveloped in flannel, may be applied. This method, now being carried out in some parts of Germany, does not recommend itself at first sight, but it may have advantages which we in this country have not yet learned to appreciate. The proper time for the use of the remedy must not be later than the first few days of the fever; and in scarlet fever, when the skin is hot and the rash bright and red. The patient being stripped should have four or five gallons of very cold water poured over him (*effusion*); and when the heat of the surface returns, the application may be repeated and renewed again and again. Its good effect is to lower the temperature, to lessen the frequency of the pulse and the respiration, to render the tongue moist and soft, to diminish or remove stupor, to procure sleep, and sometimes it may bring about a perspiration, which brings relief. But, if there be much nervous irritability, and especially in delicate females, the *shallow bath*, as less exciting than the *cold effusion*, is to be preferred. The patient then sits or is supported in an open bath, about six feet long, in a depth of water from six to twelve inches, having a temperature from 60° Fahr. to 80° Fahr. The extremities and trunk must be well rubbed by the assistant, while water of the same temperature as the bath is gently poured over the head. The patient may remain in this shallow bath from

five to forty minutes, till the temperature of the body is reduced. In cases of delirium, with a high bodily temperature (104° Fahr.) and prolonged sleeplessness, while the patient is held in a *warm bath* (92° Fahr. to 98° Fahr.), ten, twenty, thirty, or more bucketfuls of cold water (40° Fahr. to 60° Fahr.) are to be poured slowly over the head, hot water being constantly added to the immersion bath, so as to maintain its temperature at 92° to 68° Fahr. A refreshing sleep is sometimes the result.

“By using the *douche*, the cold water is made to impinge on some part of the body (head and shoulders, or individual joints, or any part in succession, for instance) with considerable force, and the nervous impression produced is correspondingly great—too great and uncontrollable to admit of its frequent employment in this way. Where *delirium* is furious it may sometimes be so quieted, and its good effects become visible if the pulse and breathing improves, or even continue as they were before commencing the *douche*. One good method of applying it is to place the patient in a warm bath, and then apply the cold *duche* to the head as described (RINGER).

“Great relief may also be obtained from the severe headache which is met with in acute specific fevers, if the water be employed as recommended by Professor J. Hughes Bennett:—‘A wash-hand basin should be placed under the ear, and the head allowed to fall over the vessel, by bending the neck over the edge. Then, from a ewer, a stream of cold water should be poured gently over the forehead, and so directed that it may be collected in the basin. It should be continued as long as agreeable, and be repeated frequently. The hair, if long, should be allowed to fall into the cold water, and to draw up the water by capillary attraction.’

“Sucking of ice, also, is most grateful to fever patients; it allays thirst. Cold spunging, or by tepid water, of the body is also resorted to with great relief in fevers. Spunging with very hot water is similarly useful. It will sometimes bring about relief by perspiration; while at the same time it soothes the restlessness and favours sleep (RINGER).

“Blood-letting or hæmorrhage also tends to reduce temperature; but blood-letting can never be tolerated in specific fevers, such as *typhus*, *typhoid*, *scarlatina*, and the like.

“*Infusion of digitalis* has been found by Wunderlich to have a wonderful influence in reducing and moderating the temperature in many febrile states, such as enteric fever. Its most obvious action in small doses is to depress the force of the heart. The dose should therefore be cautiously regulated; it must not be repeated too soon, nor be increased, if it should not operate at once.

“*Alcohol* is another agent, shown by the experiment of Professors C. Binz, Parkes, and Assistant-Surgeon the late Count Wolowitz, capable

of reducing temperature, but only in a very unimportant degree, so that its power as an antiphlogistic is very slight, and such enormous doses must be taken, that harm can only come by any attempt at reduction of temperature from the use of alcohol. Dr. Ringer has made many observations on this point, and is convinced that little can be hoped for from alcohol as a means of diminishing the preternatural heat of fever patients. This much seems certain, however, that its anti-febrile influence is best expressed in the removal of conditions which induce paralysis of the brain and heart, and when the temperature of the body is high, as indicated by the thermometer, in this respect it approaches quinine in its action, but at the same time possesses in addition its well-known stimulating action on the central nervous system and upon the heart. Depression is generally associated with a high temperature of the blood, and passes off when it falls. But, in giving alcohol, it must be remembered that two circumstances may contra-indicate its use, namely,—(1.) *Its effect on the pulse.* (2.) *Its influence on the tone and diameter of the vessels.*

“It increases the heart’s beats as well as the strength of the contractions of the heart. If such effects are to be feared, of course alcohol is not proper to be employed either in fevers or inflammation. Certain precautions must therefore be observed in the administration of alcohol, and its effects on the different functions carefully watched, to learn whether we obtain from the employment of alcohol good or harm; and although the pulse and heart afford the greatest and most reliable information on this point, yet the influence of the alcohol on the other organs must not be overlooked, as it may happen that while one system is benefited, others are injured, and with some good, the alcohol on the whole may do much harm (RINGER).

“The following rules regarding the use of alcoholic stimulants in fever were laid down by Dr. Armstrong, and they have been endorsed by many experienced physicians.

“During the administration of alcohol:—

“1. If the tongue becomes more dry and baked, alcoholic stimulants generally do harm. If it becomes moist, they do good.

“2. If the pulse becomes quicker, they do harm. If it becomes slower, they do good.

“3. If the skin becomes hot and parched, they do harm. If it becomes more comfortably moist, they do good.

“4. If the breathing becomes more hurried, they do harm. If it becomes more and more tranquil, they do good.

“‘In judging also of the influence of the alcohol on the pulse,’ says Professor Ringer, ‘its compressibility is of more importance than its volumes. Under the action of alcohol, a soft and yielding pulse of large

volume often becomes much less compressible and smaller, changes which show an increase in the tonicity of the arteries and in the strength of the heart.' Other circumstances also afford information as to the employment of alcohol, namely,—‘At the two extremes of age, the powers of the body are easily depressed, and hence, with such persons, stimulants are early called for, and must be freely used. In such, and especially the aged, it is of the greatest importance to anticipate prostration by the early employment of alcohol, as when once this occurs, the greatest difficulty is experienced in restoring the patient to his former state. Young children, when weak, take stimulants even in large quantities with benefit. And with the stimulant some easily digested food should always be given.’

“*Sulphurous acid* has also been proposed as an agent for the reduction of temperature by Dr. R. Bird, in *Indian Medical Gazette* for February, 1869. In drachm doses every two, three, or four hours, according to intensity of febrile heat, a fall of temperature has followed its administration, continued over twenty-four hours. In remittent fever he considers it especially beneficial, and in ‘internal fever’—a native name.

“(2.) *To ensure sufficient but not excessive exertion, and to promote elimination in fever*, is much more difficult than to reduce temperature; which, for obvious reasons, it is not always judicious to attempt either by *cold water, blood-letting, digitalis, or alcohol*.

“The system ought to be supplied with an abundance of alkaline salts, if the urinary excretions are not eliminated.

“*Chloride of sodium, the alkaline salts of soda, and of potash* tend to aid the formation of urea and its elimination. Purgatives generally, and especially *salines*—i.e., salts of the alkaline and earthy metals—tend to insure a proper excretion, probably by removing from the blood some of the abnormal products formed in fever, and great relief may follow their intelligent use. Where urea is retained, they promote its elimination, because it is known that urea sometimes passes off by the mucous membrane of the intestines.

“Dr. Armstrong strongly recommended purgatives to be freely administered to fever patients during the first few days of their illness, and before exhaustion had set in, so as to produce several evacuations in the day. By free purgation in scarlet fever the severe sore throat and swelling of the glands can be prevented, as well as many other of the disagreeable *sequelæ* of this disease, such as discharge from the nose and ears. I have found the following formula of great benefit as a purgative for this purpose:—

“℞. *Magnesiae Sulphatis*, ℥vi.; solve in *aquæ*, ℥viii.; adde *pulv. Guaiaci*, ℥iiss.; *Pulv. gum*; *Tragacanth*, Co. gr. xi. *Misce bene*. One-sixth part of this mixture given every four hours till the bowels are

freely moved gives great relief to the congested throat and swollen glands.

“But in some fevers, as in *typhus*, purgatives must be very cautiously and sparingly given, and always in mild doses. So also in elimination by the skin, to the extent of *diaphoresis*, is to be dreaded in typhus fever (see ‘Treatment of Typhus Fever’).

“(3.) *Restorative agents*.—The most important indication, however, in the management of the febrile state is to find some substance which, being ‘restorative’ in its action (HEADLAND), will so act upon the blood and on the nervous system at the same time, as to restore the exhausted energies of the nervous centres.

“*Food, mild stimulants, and quinine* are all more or less employed; and *quinine* especially may be employed with benefit. *Infusion of coffee* as a medicine has been given by Dr. Parkes with the beneficial effect of relieving headache. Bocker and Lehmann have shown that the use of coffee, in health, delays the metamorphosis of tissue, and excites the nervous system. As a nerve-restorative, *phosphorus* merits some notice. And first, as *iron* is given where the blood requires nourishment and restoration, so *phosphorus* seems to nourish and restore the nervous system, especially in cases of fever, where much *phosphoric acid* has been passing by the urine. The forms in which it is given are (1.) in pill, $\frac{1}{40}$ th or $\frac{1}{70}$ th of a grain of finely divided *phosphorus*, melted with fat, and the pill covered with an impermeable coating; (2.) in the form of a *hypophosphites of potash, soda, or lime*, given in *camphor water*, to the extent of five grains of the salt, three or four times a day. The *potash salts* seem to have a resolvent and liquefacient action so strongly marked, that great mischief may result from its incautious administration to persons affected with tubercular deposit in the lung. For the same reason it is of great value in *chronic bronchitis*, with thick fetid expectoration and congestion of lungs (Dr. Thorowgood, in *Practitioner*, July, 1869, pp. 14–20). *Camphor* has been also found of use in the *adynamic* type of fevers. It acts beneficially in strengthening the pulse and reducing its frequency. At the same time it moistens the skin and subdues delirium, especially the low muttering form. *Twenty grains* or more every two or three hours are required for this result, and its effects must be watched (GRAVES). *Counter-irritation by blisters* have been largely employed by Graves and other physicians as mere stimulants in fever, under the following conditions, described by Dr. Ringer as follows—‘With acute diseases, such as the idiopathic fevers and inflammations, it not unfrequently happens that persons already weak and much prostrated have their dangers greatly aggravated by the following mental state—they become apathetic and unobservant, which condition increases till it even reaches partial insensibility or coma, and they can only with difficulty be roused, and then

wear a stunned, stupid, and vacant look, and understand very imperfectly what is said to them. The body generally sympathizes with this depressed condition of the mind, and its functions are more and more languidly performed, till those necessary to life altogether cease. It is a condition which may not inaptly be compared to one produced by poisoning with opium, where there is partial coma, which produces a lethargy in the functions of the body, whose activity grows less as the coma continues and deepens. But there is no true and refreshing sleep, while it is a condition in which sleep is most urgently needed. With patients in such a precarious state, it is of all things necessary to rouse them from their state of lethargy, and with the restoration of consciousness and activity of mind, there occurs renewed vigour in the functions of the body, and the patient is removed from a state of imminent danger to one of comparative safety. To accomplish this, blisters of large size, in quick succession, and for a short time, should be applied to different parts of the body, for instance, to the chest, to the abdomen, and to the thighs and calves. I have seen very satisfactory results follow their application to the nape of the neck under such circumstances.' Dr. Ringer considers that more good is obtained by an opiate and plenty of stimulants, carefully given to produce sleep, out of which the patient wakes strengthened and much improved. No fixed rule can be laid down; each case must stand on its merits.

"The treatment of any special febrile state depends on the disease of which it forms a part, and by which it is more or less modified—forming a special topic for consideration in the part which treats of special diseases. But it is above all necessary to guard against the habit of trying always to be doing *something*. As a routine system, nothing can be laid down as a rule, either in the direction of depletion, or of evacuants, or of stimulation or restoration. The febrile state is in many diseases part of the essence of the morbid condition, which cannot be cut short nor materially subdued by remedies. There is no specific remedy for the cure of any fever; and in the present state of our knowledge regarding specific febrile diseases, there can be no specific remedy for their cure.

"Every disease where fever is present, and every case of specific febrile disease must be studied so that its management or treatment may be regulated on the merits of the individual case; and must be regulated by the state of each particular function as determined by clinical investigation daily.

"No remedial agent here mentioned can 'cut short' a specific fever. Judiciously employed, they may render them less dangerous, and may in some cases save life."

We have now in the English language three standard works on the practice of medicine, each of which has its own peculiar

recommendations. Sir Thomas Watson's Lectures contain the mature opinions of a highly educated practical physician, and as such will always be read with attention even by those who have themselves been long engaged in the practice of their profession, while for students their value consists in their presenting in language singularly clear and happily chosen the clinical features of diseases, and a large portion of what is known as to their nature and treatment. Dr. Aitken's work is the acknowledged text book for those somewhat advanced students who are determined to acquire a thorough knowledge of the scientific medicine of the present day, while Dr. Tanner's *Practice of Medicine* is the one in which the practitioner actively engaged in the treatment of the sick will find the largest amount of reliable and trustworthy directions for his guidance, in the emergencies and perplexities of his calling.

A Treatise on Disease of the Bones. By THOMAS M. MARKOE, M.D., Professor of Surgery in the College of Physicians and Surgeons; Surgeon to the New York Hospital, &c., &c. New York: D. Appleton, & Co. 1872. 8vo, pp. 416.

DR. MARKOE publishes in this volume the substance of his Lectures delivered at the College of Physicians and Surgeons of New York during the past twelve years. He states that he has written chiefly on those branches of his subject of which he has seen and studied most, to some extent neglecting those of which his experience has been deficient. He lays no claim to the authorship of a complete compendium of all that is known on the subject of disease of bone. Much of the value of his work is, in our opinion, due to this fact, for in the present day we are fully supplied with voluminous systematic treatises, which aim at completeness, while they are wanting in that practical information which the author affords us.

Dr. Markoe says that the study of disease of bone has been of life-long interest to him, while he has had ample opportunities for its cultivation. His work gives us proof that he has not failed in turning his opportunities to good account. Everywhere it bears the stamp of good practical surgery. While he devotes the greater part of his space to the practical illustration of his subject he does not exclude its literature, with which he appears to be thoroughly familiar.

The introductory chapter alone would, we think, have been well omitted from the work. The comparison drawn between the processes of growth and repair of the vertebrate and invertebrate skeletons is too limited and too hasty to be of interest to the physiologist, and it adds nothing to the practical character of the work. We are not inclined to agree with the author that the process of renewal of the skeleton of the crustacea or insecta is either clumsy or imperfect. True, it has its disadvantages in exposing some of these animals to special dangers during the change, but we think the vertebrates have equal, if not greater, disadvantages to complain of in being obliged to carry to the grave the deformities which result from the injury or disease of their skeletons. Many a man would, we think, be very fortunate if he could get as complete a refit of his skeleton as a crab does, and might well bear a fair share of danger during the change without grumbling. Dr. Markoe appears to look on the powers of the vertebrate skeleton with a prejudice in their favour in drawing this contrast, possibly caused by his extended study of the human side of the question, as compared with a very limited acquaintance with the opposite. This appears when he says:—"Contrasted with these imperfect efforts in the lower animals, we find in the higher mammalia, and particularly in man, that the repair of injured bone is among the most beautiful and perfect of all reparative actions."

The subjects of necrosis and of malignant diseases of bone are perhaps those most fully dealt with by Dr. Markoe, and will be read with most interest by the practical surgeon; from the account of the former disease we select the following:—

"I have examined carefully, during the last twenty years, thirteen cases of necrosis in which hæmorrhage occurred of sufficient severity to require surgical interference. In every one of these it was the main artery of the region which was the source of the hæmorrhage, except in one case, and then it was the vertebral which had been eroded by a fragment of dead bone from a pistol wound, which was in a favourable state of healing when the fatal hæmorrhage occurred. In each case the coats of the artery were eroded, evidently by the direct contact of a sharp edge of the sequestrum, with one exception, and then, though the main artery was opened, and a sharp sequestrum was quite near, we could not pronounce positively that the hole observed in the side of the artery was actually due to the pressure of the sharp edge of bone. The number of observations is too small to decide the point that small vessels never bleed from the cause we are studying; but the testimony of these few is

so nearly uniform that I think it may safely be accepted as a pathological law, and I am quite sure it affords our soundest practical indication. Precisely what that indication is must be settled by the features presented by each case; but it is hardly necessary to say that the remedy does not consist in the mere removal of the cause of the mischief, that is, the sharp edge of the dead bone. When it is removed there remains the opened artery to be cared for, and if my position is correct, that this opened artery is a main trunk, very little hope can be entertained that nature will be able to close the wounded vessel without assistance from art. Two courses present themselves to the surgeon in this serious emergency. The first is to make an attempt to reach and tie the wounded vessel; and the second is to amputate if the ligature cannot safely or successfully be undertaken. The point of urgent importance, however, is, in my judgment, not to delay till a sudden gush of blood places your patient beyond the hope of benefit from any operation, be it ever so clearly indicated or ever so skilfully performed."

Again:—

"That the danger from hæmorrhage in necrosis is a real and formidable one, even in circumstances most favourable for prompt surgical assistance, will perhaps most clearly appear from the statement that of eleven cases which I have met with, mostly occurring in the New York Hospital, six have died. In ten of these everything was promising well when the hæmorrhage occurred, and in every case but that of the vertebral the injured vessel was accessible to ligature, or the limb might have been removed by amputation. These things taken into consideration, my recommendation of promptness in operation receives an emphatic endorsement. Delay in hope of saving the limb is fatal to life."

Dr. Markoe follows the consideration of the principal features of necrosis with special sections on the varieties of the disease. 1. Superficial necrosis or exfoliation. 2. In the heads of bones near joints. 3. In cranial bones. 4. In jaw bones. 5. After fractures. 6. After amputations. 7. Without suppuration. 8. Without exfoliation. Our readers will see from this list how fully the author enters into the details of his subject. Our space does not admit of our extracting the valuable information contained in his illustrations of each of these forms of the disease. It is sufficient for us to say that each is examined in the same practical spirit that the subject of hæmorrhage from which we have quoted is.

The author's chapter on malignant disease of bones concludes with a statement of his opinions on the propriety of the operation

of removal of these diseases, which applies to all malignant disease, and is well deserving of attention. He says:—

“Acting upon the principles we have now considered, I would refuse to operate:—

“1. In any case in which there was not a reasonable certainty that the whole of the diseased tissue could be removed.

“2. In any case where there was clear evidence that secondary cancer had taken place. This requires some modification. The mere fact of internal cancer having begun to show itself might not in all cases forbid operation. If the local disease presented unusually distressing or threatening appearances, we might sometimes be warranted in relieving the patient, by operation, of his immediate sufferings and dangers, though we might be sure that no prolongation of life could be gained by the operation. As a general rule, however, no operation should be performed where secondary disease has already developed itself.

“3. In any case in which cancerous cachexia was already well marked. It is to be presumed, in this case, that the general system is already poisoned by the disease, and that the powers of reparation are materially reduced. If the removal of the local cause could be relied on as a removal of the whole disorder, then we might hope, as in other cases in surgery, that the constitutional disturbance would abate on the removal of the source of irritation with which all parts suffer; but it is the effect, and at the same time the sign, of a change in the actions of the whole economy which is as much a part of the disease as the ulcerated tumour itself, and which will not be arrested in its progress by the most successful extirpation of the primary disease.

“4. In any case where the operation required was so formidable in its extent or character as to add materially to the dangers of the patient's condition, we would not hesitate to amputate a fore-arm, where we might refuse to exarticulate at the hip-joint, and generally a trifling and safe operation would be more readily resorted to by the surgeon than one of great magnitude and danger. Our hopes of benefit do not warrant the running of greatly increased risk of life.

“5. Where the patient was very old, and the cancer chronic in its course, the slow progress of disease is likely to continue if it is left alone; the operation would be very likely to hasten a fatal termination in advanced age.

“6. Where the patient was not a subject for any operation by reason of bad habits, excessive fat, great feebleness, or any organic disease impairing nutrition, or reparative power. I think, too, that unconquerable fear of an operation, or unreasonable dread of its consequences, should be a contra-indication not to be overlooked.”

On the other hand, I would advise an operation:—

“1. In all cases where the disease could be easily and entirely removed, and particularly if, as in the case of amputating a cancerous bone, I could be sure of removing, not only the disease, but the whole organ affected by it. This, I think, is a very important practical point; and, I believe that the cases in which any other operation than amputation should be performed on one of the long bones affected with cancer, must be very rare indeed.

“2. Where there was no suspicion of any secondary disease in any internal organ, and no extensive affection of the lymphatic glands. The mere enlargement of a few of these glands by local infection is no contra-indication of an operation, statistics not showing that this condition adds materially to the unfavourable prognosis, particularly if they admit of complete removal.

“3. Where the true cancerous cachexia was not yet developed in any marked degree. It is not always possible to discriminate between the constitutional effects of cancer, as such, and those depending on the ordinary causes of failing health and strength, such as pain, hæmorrhage, excessive discharge, and the like. In many cases, however, it can be arrived at, and where there seems to be no failing of the powers of life, but what can be accounted for by the effects of the local actions, we have a right to recommend an operation, in the hope that for this form of constitutional impairment, the removal of the local cause will prove a remedy.

“4. If the operation required for the removal of the disease be not one seriously imperilling life. In cancer of the bones this question is brought down to the comparison of a very few operations; mainly amputations and the excision of the upper and lower jaws. All these are serious operations, and should not be lightly determined upon; but, for most of them, the precise grade of danger is almost mathematically proved by reliable statistics; and inasmuch as in these operations we are cutting through perfectly sound parts, we may almost say that we can announce the precise amount of risk we are recommending our patient to assume in undergoing any given amputation. Of course this risk will be modified by the condition of the patient in other respects than the cancer for which the operation is to be performed; but this condition presents nothing which we are not accustomed to deal with in the ordinary problems of surgery, and is to be appreciated in accordance with its well known laws.

“5. If the cancer be of slow growth, and the patient not old, we have very good reason for believing that the recurrence will be long delayed, and the period of exemption from disease will be a long, perhaps a very long one. It is from this class of cases that most of the

so-called cures are derived, and though I cannot assert that statistics prove the fact, yet I think their results render it highly probable, that the slower a cancerous growth is in passing through its earlier stages the longer is it delayed after operation, and the slower its progress when it does return. Very acute cancers are generally unfavourable cases for operation.

“6. The good general health of the patient is a strong point in favour of an operation deemed proper for other reasons, as well as an earnest of its success. I cannot help feeling, too, that in all cases a strong desire for operation, and strong conviction that it will be successful, on the part of the patient may be accepted by the surgeon, not only as a good omen, but, as far as it goes, a positive indication.

“Lastly, though it may not flatter our scientific vanity, yet it is but honest to confess that the uncertainty of our diagnosis may give some encouragement to operation, as in removing what we believe to be a cancer, we may perhaps be extirpating a perfectly benign growth, and, instead of giving our patient a brief respite from death, our mistake may secure for him an uncontaminated and a healthy life.”

We fear that this last reason is that too often availed of by what may be called the bloodthirsty among surgeons, under the pretext of “giving the patient the benefit of the doubt.”

In conclusion, we may notice a fact on which we may well congratulate our American brethren—namely, the freedom of the New Continent from rickets, a fact of which we confess our ignorance before we read Dr. Markoe’s work. Dr. Markoe says of it:—

“Rickets is a disease so rarely seen in our country, that I have no experience which would entitle me to speak of it authoritatively from my own observation.”

Injuries of Nerves and their Consequences. By S. WEIR MITCHELL, M.D., Physician to the Philadelphia Orthopedic Hospital and Infirmary for Diseases of the Nervous System, &c. Philadelphia: J. B. Lippincott & Co. London: Trübner & Co. 1872. 8vo., pp. 377.

THIS work is based on the experience of the author, acquired chiefly in the hospital founded by the Surgeon-General of the United States’ army in May, 1863, for the treatment of the cases of nerve injury occurring during the war. Much that it contains has been already published in Reports of the United States’ Sanitary Commission, and in a small volume published in 1864 by the author and his colleagues in charge of the Hospital for Nerve Injuries. We

think no apology is required from the author for the republication of these facts, difficult of access as they are, and for bringing down the history of many of the most important cases to a later date; while at the same time he gives us the benefit of his increased experience and more mature judgment. The vast materials afforded by a special hospital for the treatment of nerve injuries provided with four hundred beds, and supplied by the wounds received in the late American war, have afforded the author and his colleagues unrivalled opportunities for the study of this class of wounds, and necessarily give great weight to their opinions on practical subjects.

Under the heads of "Anatomy of Nerves," "Neuro-Physiology," and "Physiological Pathology of Nerve Lesions," the author gives an excellent summary of the present state of knowledge and opinions on these subjects, which we have read with much interest. On the question of the power of the vaso-motor system in controlling nutrition the author speaks as follows:—

"Without attempting to treat fully of this matter, for which, indeed, the physiological groundwork is still deficient, I shall content myself with stating the impressions in this direction which a large experience of nerve wounds has left upon my mind. When the physiology of the vaso-motor nervous system was first elucidated by the labours of Bernard, Brown-Sequard, Schiff, and others, it was supposed that it would enable us readily to explain the many obscure phenomena which arise out of nerve wounds; but despite the able arguments of Handfield Jones and some other observers, this hope has gradually faded away, and it is now generally admitted that we must seek elsewhere for a satisfactory explanation of the facts in question."

Dr. Mitchell follows this statement with a detailed examination of the two sides of the question, to which we must refer our readers. His conclusion is—

"I am unwilling to admit that vaso-motor nerve lesions have any other share in the production of the tissue changes which follow nerve wounds than merely to prepare the ground for their production by other more direct agencies."

Again, of the existence of distinct nerves designed to control nutrition, the author states—

"The phenomena of nerve wounds, as I have seen them, lend no conclusive support to the theory, and there are in them, as in many other physiological facts, certain arguments in favour of the possibility of

disorders of nutrition being capable of production by irritation of ordinary nerves of sensation, and, indeed, of motion."

On the important question of the use of sutures in the treatment of incised wounds of nerves applied directly to bring the cut nerve surfaces into contact, as has been recommended during the last ten years, we had hoped to have found some new trials of the treatment recorded in so great a number of wounds; but the method does not yet seem to have found sufficient favour to insure its adoption in general practice. Of this plan the author expresses the following opinion:—

"Where it is plain, from a careful study of the wound and the loss of function, that the nerve trunk has been altogether divided, the surgeon is called upon to decide whether he will leave repair to nature alone, or enlarge the wound and secure coaptation of the nerve ends by the use of sutures. The propriety of this step rests upon the manner in which we answer these two questions: Will any, even the most perfect, approximation of nerve ends insure immediate union? And failing this, will it make likely a more speedy return of healthy function? To the first, we may give a certain negative; to the second, we may, with some confidence, reply in the affirmative.

"As I have already pointed out, all the physiological evidence is against the possibility of immediate useful union. Within a few days the peripheral end of the nerve surely degenerates, and in adult animals many months may pass before it is restored and the two ends reunited. Even in young animals, the earliest re-establishment of function, when the ends were made to touch by suture, was seven or ten days (Schiff), and nine days (Magnien). Vulpian has no case within seventeen days; and I have never met with an instance even in so short a time as this. The physiological facts are therefore opposed to the probability of immediate union; but on the other hand, we are met by the statement that these were derived from lower animal life alone, and that in man the rule as to the time demanded for restoration may meet with exceptions, and this possibility is supported by certain clinical histories, which may not be altogether set aside.

"The evidence in favour of regarding nerve suture as not injurious is, therefore, simple when we unite the clinical and physiological statements, both of which seem to decide very conclusively that after its employment the time needed for healing is notably lessened. The case of Verneuil, already alluded to, is further cited by Tillaux and Paulet to support this view. Both ulnar and median had been severed, but the suture was used in the latter alone, with the result of rapid return of

sensation of parts fed by the median, and very slow sensory restoration of the ulnar territories, exactly the result which has attended the physiological use of the suture. There seems, therefore, to be justification for the employment of sutures in any nerve wound, and especially where there has been loss of substance, as after the removal of a neuroma."

We have quoted thus fully from the author on this subject, as it is one left untouched in most English works, and as it appears of such practical interest as to deserve more attention than it has received up to the present. The mode of applying the suture practised by Vulpian seems to us the simplest and best:—

"He carries a simple linen thread with a fine needle from the upper side of the nerve obliquely through it, so as to come out about the middle of the cut surface. It is then passed through the middle of the exposed face of the opposite section and out at its upper side, so that when the loop is made and drawn, it brings the ends in exact opposition if the needle has been made to penetrate precisely corresponding points of the two faces."

In the treatment of traumatic neuralgia the author has had an experience of such amplitude that we may well rely on his estimate of the various plans of treatment. He says:—

"The pains of traumatic neuralgia are so terrible that we are usually driven at once to the use of narcotic hypodermic injections, without which it would often be impossible to relieve such cases. In neuralgia, from what we call, for want of a better term, irritation of nerves, there is reason to believe that some of the opiates, in the form of hypodermic injection, may prove more or less curative in their action; but where, as in most traumatic neuralgias, there is manifest organic alteration of the nerve, such agents are chiefly of service because they relieve pain, and thus enable us to bridge over, so to speak, the many months of torture which are needed to bring the nerve back to health again, or to afford time for electrical or other treatment. . . . At the present time this mode of using narcotics has grown into common use, but even yet it is scarcely estimated at its full value. In the wards for nerve wounds in the U. S. A. Hospital, it is almost the only plan of treating severe neuralgic pain; so that twice or thrice a day the resident surgeons passed around these wards with their narcotics and hypodermic syringes, seeing, as a physician observed to me, anguish and troubled faces before them, and leaving behind them comfort, and even smiles.

“During one year, at least forty thousand doses of various narcotics were administered, without an accident; and in certain single cases, upwards of five hundred hypodermic injections were used; so that, if there were no other evidence of the innocence of this mode of medication, our own experience would have been amply competent to settle the question. I have had large opportunity of studying, in traumatic neuralgia, the comparative merits of narcotics used by the mouth or under the skin, and I have no hesitation in stating my opinion, that the latter method is not only the more effective, but also the less harmful constitutionally. For the easing of neuro-traumatic pain we tried, in turn, the whole range of medicines known as narcotics, such as conia, hyoscyamus, daturia, atropia, and morphia. None of them, save the last, seemed, when singly used, to be of the slightest value; and one by one they were laid aside, until, in the vast mass of cases, the salts of morphia alone were employed. A careful series of examinations showed very distinctly the trifling influence of atropia upon this form of pain. Several cases of intense neuralgia from wounds were treated with injections of sulphate of morphia under the skin in rising doses. When we learned the amount needed to give entire ease, we used in its place, next day, a full dose of atropia, our largest injection having been one-fifteenth of a grain. The most absolute failure attended these efforts; so that, without denying to this latter drug the power ascribed to it of relieving certain neuralgias, I am sure that it is, in the traumatic species, simply useless. The morphia salts, on the other hand, are invaluable. For hypodermic use I usually employ at first one-fourth of a grain of the sulphate, but I have given as much as a grain and a half twice a day. When continuously used, it is curious that its hypnotic manifestations lessen, while its power to abolish pain continues; so that the patient who receives a half grain or more of morphia may become presently free from pain, and yet walk about with little or no desire to sleep. The ability to lessen pain is not, therefore, of necessity connected with the sleep-compelling potency. Where, however, the latter is inconveniently felt, and we desire the former only, it is possible to attain the end in view by using with the morphia a certain share of atropia. Thus, if we inject half a grain of sulphate of morphia, and with it the thirtieth of a grain of sulphate of atropia, the anæsthetic force of the morphia will rest unaltered, but the tendency to sleep will be greatly diminished. The views here set forth were reached after long and careful experiments on large numbers of men, and seem to justify the practice of using atropia and morphia together. As regards the place of injection, I agree with most observers, that it is generally of little moment, the effect being the same whether it be thrown into the affected limb or into a remote part. The single exception to this I shall presently mention.”

This exception occurs in the treatment of the burning pain, or as it is called, causalgia, for which—

“A vast number of means were tried to ease or cure, but the one essential for comfort was the use of water dressings, which were unceasingly removed, the sufferers carrying a bottle of water and a sponge, and keeping the part covered. I have never known a man afflicted with causalgia who did not learn very soon the use of this agent, and I never knew one who could be induced to exchange it for any other permanent dressing. Further relief was given by hypodermic injections of morphia, used twice a day, and injected into the tissues of the affected part. I am well aware that this is not in accordance with recent views as to the equal efficacy of injections at points remote from the seat of pain, but I am well satisfied that in causalgia something is gained by the local proximity. Numerous experiments were made to determine whether as full relief might not follow injections at distant points, but although the injecting of the burning hand produced in many cases torture, the patient was sure to insist upon it after a few trials of other localities.”

On all other points connected with nerve injuries, Dr. Mitchell speaks equally clearly and honestly.

A Clinical Manual of the Diseases of the Ear. By LAURENCE TURNBULL, M.D., Physician to the Department of Diseases of the Eye and Ear of Howard Hospital, Philadelphia, &c., &c., with a Coloured Lithographic Plate, and over 100 illustrations on Wood. Philadelphia: J. B. Lippincott & Co. London: Trübner & Co., Paternoster-row. 1872.

Archives of Ophthalmology and Otology. Edited and Published simultaneously in English and German. By Professor H. KNAPP, M.D., in New York, and Professor S. MOOS, M.D., in Heidelberg. Vol. I., No. 2, and Vol. II., No. 2. New York: William Wood & Co. Carlsruhe: Chr. Fr. Müllrische Hofbuchhandlung. 1870–1871.

Transactions of the American Ophthalmological Society Eighth Annual Meeting. Newport. July, 1871. New York: D. Appleton & Co., 549 and 551, Broadway. 1871.

On the Mechanism of Accommodation for Near and Distant Vision. By R. E. DUDGEON, M.D.

The Royal London Ophthalmic Hospital Reports, and Journal of Ophthalmic Medicine and Surgery. Edited by J. C. WORDSWORTH and J. HUTCHINSON. Vol. VII., Part III. July, 1872. John Churchill & Sons, 11, New Burlington-street.

Annales D'Oculistique. November, 1871, to April, 1872.

OWING probably to the anatomical position of the greater portion of the organ of hearing, as well as its complexity of structure, and the difficulties necessarily attendant upon researches into its obscure disorders, investigators have somewhat neglected the apparently barren field of otology, and devoted themselves to more attractive subjects. Up to comparatively recent years little was known of the physiology and pathology of the ear, and its diseases and impairments of function were given over to empiricism and charlatanism. With the advance of science which has characterized modern times, considerable advances have also been made in otology, and a reformation has been effected in this branch of medicine—a reformation attributable, in a great measure, to Sir William Wilde, who placed the subject on a scientific basis, and dispersed the dark mists of ignorance and quackery which hung around it. In his admirable and unrivalled treatise, *Practical Observations on Aural Surgery*, he brought the subject in a popular form under the notice of the profession, combated quackery and scepticism, dispelled illusions, and by his arguments, demonstrations, and facts, compelled belief. He also established, and still carries on, in St. Mark's Hospital, a school which numbers amongst its pupils some of the most eminent aurists as well as oculists of the present day. The physiology of hearing is being daily perfected, and the study of the laws of sound and cognate topics has recently received considerable impetus by the researches of Helmholtz, Jago, Tyndall, &c., &c. One of the most remarkable efforts in this direction is that of Dr. Oscar Wolf, of Frankfort.

In his *Akustisch-Physiologische und Pathologische Studien* Dr. Wolf analyses the elementary composition of the individual sounds of the human speech, according to existing acoustic-physical laws, and describes the peculiar characteristics of the defective ear in respect of its perception or recognition of the different sounds. He divides the consonants into self-sounding or such as sound independent of vowels (R, B, K, T, F, S, G, Sch.), and sound-borrowing or such as must be accompanied by a preceding or following vowel,

in order to become audible (H, L, M, N, W), and shows that the correct recognition of certain letters or words in which such letters occur in certain combinations is incompatible with certain pathologically defective conditions of ear, while other letters, or combination of letters as words, are invariably heard correctly by the same persons. He endeavours to base a diagnosis upon the particular reception by the patient of certain combinations of sound at certain distances. When asked to repeat certain sounds or test words patients labouring under a given defect will not be able to repeat that identical sound or word, but will, one and all, pronounce a somewhat analogous, but yet a different word. We are all familiar with the fact of deaf persons hearing erroneously and taking up wrong ideas. Even ears with apparently normal hearing differ very much in different individuals and appreciate sounds differently; thus Dr. Wollaston mentions that while one person could but just hear a note four octaves above the middle E of the piano-forte, there were others who had a distinct perception of sounds full two octaves higher. Nothing can be more surprising, says Sir John Herschell, than to see two persons of normal hearing, the one complaining of the penetrating shrillness of a sound, while the other maintains there is no sound at all, and Tyndall, in his "*Glaciers of the Alps*," alludes to his friend hearing nothing of the music of the insects which swarmed in the wayside grass, and which to himself rent the air with their shrill chirping. Dr. Wolf's essay being but a recent publication is not noticed in the works now before us.

Dr. Turnbull's *Clinical Manual of the Diseases of the Ear* deserves commendation. It is an elaborate and careful compilation, embracing every subject connected with diseases of the ear, and is, in our opinion, the best text book for students as well as the best work of reference which has as yet appeared. Its illustrations and its bibliography, especially the latter, enhance the value of the work. Now that Sir William Wilde's *Aural Surgery* is out of print, and no longer to be obtained, we can recommend Turnbull's work to our readers.

The numbers of the *Archives of Ophthalmology and Otology* now before us sustain the high reputation of its editors, and fully bear out the favourable opinion we originally expressed concerning this publication and its certain success. The communications are of

very great merit, and treat of the most varied as well as the most interesting subjects. As a consequence of its high literary and scientific character and great practical merits this serial publication must find its way into the hands of every practitioner who assumes to be at all conversant with the present condition and aspect of ophthalmology and otology. As owing to the multiplicity of the communications, each possessing special practical or scientific interest, it is impossible for us to select any one for quotation from these archives; so likewise is it impossible—though very tempting to us—to select any one communication from the *Transactions of the American Ophthalmological Society*. We cannot omit, however, commending, and holding up as a pattern Dr. Joy Jeffries' Report, on the Progress of Ophthalmology for 1870–71. The American practitioners almost invariably employ ether instead of chloroform for anæsthetic purposes; they say it is much more safe than chloroform, and equally efficacious, and deny that death has ever resulted from this drug when properly administered; they insist on the ether being perfectly pure, and on its being rapidly administered in large doses. We can from experience speak most confidently of the administration of ether, and can unhesitatingly advise its substitution for chloroform. From the character of the works we have just alluded to it will be seen that our American colleagues are stirring themselves to leave us behind in ophthalmic and aural matters as they have done in other things, and it behoves us in this country to be still more energetic in research, and more active in teaching if we wish to maintain the eminent position which was won in former years, for the Dublin School of Surgery. It is gratifying to find that the Council of the Royal College of Surgeons in Ireland have led the way in this direction by instituting a professorship of Ophthalmic and Aural Surgery.

In his pamphlet of 19 pages Dr Dudgeon argues against the received theory respecting the adjustment of the eye from distant to near vision, and in place of that theory, supported by the observations and deductions of Helmholtz, Cramer, Donders and others, endeavours to set up a theory of his own.

The old and well established *Annales D'Oculistique* founded by Dr. Cunier, sustains its high reputation; in its pages will be found everything worthy of note, no matter where originating.

Injuries and Diseases of the Jaws: the Jacksonian Prize Essay of the Royal College of Surgeons of England, 1867. By CHRISTOPHER HEATH, Surgeon to University College Hospital, &c. Second Edition.

IN the number of the *Dublin Quarterly Journal* for November, 1868, the first edition of Mr. Heath's book was reviewed. The favourable opinion then expressed regarding it has been amply sustained by the character which it now holds amongst standard surgical works. In his preface to the second edition of his work, Mr. Heath says:—

“I have given the results of further personal experience, and have endeavoured to do justice to the labours of others, among which I may particularly notice the researches of M. Broca, Mr. Salter, and Mr. Charles Tomes, on the nature and structure of ‘Odontomes;’ and the investigations of Mr. Wagstaffe on the structure of cystic-sarcoma.”

The chapter on odontomes forms the most interesting addition to the first issue of the work before us. Undeveloped teeth produce “dentigerous cysts;” they also, especially when misplaced as well as undeveloped, give rise to solid tumours. The tumours which have been named by M. Broca “odontomes,” appear to owe their origin to certain modifications which the molar teeth occasionally undergo during their development. The tumours, in all the five cases which have been as yet described, consisted of an irregular mass, made up of dentine, enamel, and bone, but in no way resembling a tooth. One of these odontomes is thus described:—

“The second molar of the lower jaw was represented by an irregularly flattened mass, composed of enamel, dentine, and bone derived from calcification of remnants of the dentine pulp, thrown together without any definite arrangement, by which the wisdom tooth was held down. The dental mass, when removed from its receptacle in the bone, presented no resemblance to a tooth. Little beads of enamel here and there projected from the surface, which was generally rough and irregular. The naked-eye appearance of the section is accurately given in the wood-cut, the radiate character in which shows the arrangement of the component tissues, which, by the aid of the microscope, are seen at places to alternate. The alternation is mainly effected by the dentine and bony tissue, and these, indeed, form the great bulk of the mass. . . . The appearances presented, prior to the operation, consisted in enlargement of the jaw posterior to the first permanent molar tooth,

with a hard, brown-looking body projecting but slightly from the surface of the gum. This projecting portion was, in fact, the upper surface of the aberrant tooth; and the nodules of enamel were, for the most part, situated in this part of the mass."

Such tumours appear to be the result of "some modification of the germs of the teeth before the formation of the cap of dentine;" but sometimes a tumour appears which "consists in an outgrowth from a more or less perfect tooth, depending upon some modification of the dentinal pulp after the formation of the dentinal cap"—these are the *odontomes coronaires* of Broca, and the *warty teeth* of Salter.

Mr. Heath concludes his account of these growths by the following judicious remarks:—

"It will be obvious, from a consideration of the preceding cases, that every effort should be made to extract the osseous tumour from the jaw without removing any portion of the bone itself. In the case of dentinal mass recorded by Mr. Harrison, the tumour was enucleated spontaneously, in Oudet's case it was removed without difficulty, and in two other cases its removal was readily effected after the containing portion of jaw had been excised. Where the growth is presumably connected with a tooth, the rule of removing all neighbouring teeth which may possibly be connected with it, should be invariably followed before any more serious operation is undertaken."

The following extract will show the practical surgeon the useful character of the book:—

"The treatment of suppuration of the antrum consists, in the first place, in the extraction of all decayed teeth or stumps in the affected jaw, and with this object in view those teeth which are apparently sound should be tested by a sharp knock with some metal instrument, when, if tender, they should be extracted. If the cause of the mischief is removed in time, the inflammation will subside under fomentation and the application of a leech to the gum; but if matter has formed, it must be evacuated without delay. If the extraction of a tooth is followed by the flow of pus, the enlargement of the aperture in the socket by the introduction of a trocar is at once the readiest and simplest mode of evacuating the matter; but if all the teeth are apparently sound, it will be advisable to extract the first molar in order to puncture through one of its outer sockets. The first molar is to be preferred for extraction, both on account of the depth of its socket, and also because, as mentioned by Salter, it is more liable to decay than the other teeth. In

puncturing through the socket of a tooth with a trocar, it is well to gauge the depth to which the instrument may safely go with the fingers of the hand which grasps it, lest injury should be unwittingly inflicted on the orbital plate by the trocar entering unexpectedly. When the teeth are all sound, some surgeons prefer to perforate the alveolus above the gum with a trocar or strong pair of scissors, and similar treatment would be required in the rare case of suppuration occurring after loss of the teeth in old people. I find it convenient to employ the ordinary canula with the trocar, since by its means the flow of fluid can be more readily seen, and any injection of the cavity at the time easily performed.

“Whatever method may be adopted for emptying the antrum, it is important that the cavity should be thoroughly cleansed by the injection of warm water. For this purpose a curved canula, fitting the syringe ordinarily employed for injecting hydrocele, answers very well; or I have satisfactorily employed an ordinary Eustachian catheter for the purpose, to which an india-rubber injecting-bottle can be readily adapted. After thoroughly cleansing, some detergent and slightly astringent lotion should be injected, to restore the healthy condition of the mucous membrane, and for this purpose weak solutions of permanganate of potash or sulphate of zinc answer admirably. If the perforation has been made through the socket of a tooth, care must be taken that particles of food do not gain admission to the antrum, and this may be accomplished by plugging the hole with cotton wool, or, as suggested by Salter, by fitting a metal plate to the mouth with a small tube to fill the aperture, which can be corked at pleasure, and will serve as a pipe for injection. When the perforation is made above the alveolus there is much less likelihood of food finding an entrance.”

We recommend Mr. Heath's work to the attention of every hospital surgeon.

WORKS ON ANTISEPTIC SURGERY.

1. *Earth as a Topical Application in Surgery.* By ADDINELL HEWSON, M.D., Attending Surgeon to the Pennsylvania Hospital. Philadelphia: Lindsay and Blakiston. Pp. 309.
2. *Antisepticity in Surgery.* By EDWARD LUND, F.R.C.S., Surgeon to the Manchester Royal Infirmary. Manchester: J. E. Cornish. Pp. 16.

THE first of these works, that by Dr. Hewson, treats of the use of earth as a dressing for all kinds of wounds and open sores. It

is elegantly brought out, and is illustrated with photographs. A large part, more than half of the volume, is occupied by a description of ninety-three cases which have been treated by the author with earth as a dressing, with varying success: Of this portion of the work it is to be remarked, that the author has given the result of his observations with great candour and fairness, without concealing or trying too much to explain away the failures which he has met with during his experiments. As the result of his investigations he concludes that, when topically applied, the earth, so far from having, as might be expected, an irritating effect, soothes the pain, and gives to the patient a peculiar and grateful sensation of coolness in the part. Its effect as a deodorizer has long been known; indeed, it was the introduction of earth closets which first drew the attention of Dr. Hewson to this substance, and suggested its probable usefulness as an antiseptic. On the process of healing he states, that the effect of this dressing is most marked, causing it to proceed with extraordinary rapidity, and preventing, at the same time, the occurrence of almost any inflammation.

Considerable space is then devoted to an examination of the *modus operandi* of earth when used as a dressing. Our author at once rejects the theory that the earth acts by its physical properties: 1st, because in many cases sufficient was not applied to enable it to act in this way; 2nd, because those kinds of earth possessing most marked physical properties are found to be by no means the best for surgical use. He inclines rather to the theory advocated by Mr. Manson, that the true action of antiseptics is to be referred to a chemical influence rather than to a power of destroying organic germs, whose existence he doubts or altogether denies. This theory he supports by many experiments, and by analyses of the chemical changes found in earth after its use on a suppurating sore. He further supports the chemical theory by an examination of the influence of various coloured coverings used with the earth dressing, having found it most effectual when a blue covering, and least so when a red one was used; thus showing the effect which different parts of the spectrum exercise on the process of healing.

Following out the same reasoning, our author confidently refers all the symptoms of inflammation to chemical sources occurring in the part, and caused by the abundant oxidation which is going on in the tissues.

The work is well written, and the reasoning clear, and on looking

at the result of the recorded cases, much benefit seems to have been obtained from the earth dressing in many instances. It must, however, be acknowledged that, on the whole, we possess other antiseptics of superior value in practice. The earth dressing possesses the great defect of requiring frequent renewal, for as soon as it becomes damp its efficiency entirely ceases. Now, carbolic acid and some other antiseptics may be left on for days, the dressings being simply smeared daily with the substance in use, thus saving all the pain which results from the removal of dressings from large wounds. The earth, moreover, is by no means so cleanly or so easily applied as are some of our other antiseptics; and for these reasons we may conclude that earth will probably never become a universally used dressing.

The second work before us is a short pamphlet read before the British Medical Association, at Plymouth, in 1871. In it, also, the chemical theory of suppuration is adopted in preference to the theory of germs. The author considers the antiseptic as essentially a prophylactic treatment, and one which, to be effectual, must be applied from the beginning, before chemical change has been set up. He points out that, though the final skinning of wounds may be effected with somewhat a slower progress, yet that when completed under antiseptics, the cicatrix has less tendency to contract, and we are in this way repaid for the loss of time. He considers that, in following the antiseptic treatment, as it is impossible to exclude the air, we must effect some change in it before its access, and that we must, therefore, choose some substance which, being slightly volatile, will become diffused through the surrounding air, and there effect the necessary change in its condition. The dressing whose use our author chiefly advocates is the carbolized muslin introduced by Professor Lister.

WORKS ON SPIRITUALISM.

1. *Mysteries of the Vital Element.* By ROBERT H. COLLYER, M.D.
London: Renshaw. 1871. Pp. 144.
2. *Spiritualism Answered by Science.* By EDWARD W. COX, S.L.
London: Longmans. Pp. 56. 1871.
3. *Psychic Force and Modern Spiritualism.* By WM. CROOKES,
F.R.S. London: Longmans. 1872. Pp. 24.

4. *The Spiritualist. A Record of the Science and Ethics of Spiritualism.* Nos. i.-xxx. 1871-2. (A monthly newspaper.)
5. *The Quarterly Journal of Science.* July, 1870, and October, 1871.

THE curious form of belief to which the name of spiritualism is generally given, is now entering upon a new phase, as recent attempts have been made to relegate the phenomena and their study to the domain of science. For the modern development of this subject we are mainly indebted to the Americans, as it is only since Miss Kate Fox exhibited a spontaneous mediumship, about the year 1851, that the present epidemic of belief has lasted. In one form or other, however, superstitions of the same generic character have always prevailed, and they formed a very large constituent element of the magic of the middle ages. Any one reading the works of Giovanni Battista Porta, or Albertus Magnus, or any of the writings of the alchemists or magicians of the middle ages will find in them references to forces other than physical, capable of interfering with material beings. In fact, a magician was one who had the power of controlling or displaying this superphysical power—a power which the masters of the art recognized as inherent and incommunicable, as it was regarded to be equally true of a magician as of a poet, that he was so born, not made. The later wonders of Mesmer and Cagliostro, and their followers, exhibited a second phase of the belief, and the most modern growth may be said to have had its origin in the researches of the late Professor Gregory, and others about his time.

The first attempt to account for these phenomena on a physical basis was probably that of Professor Carl von Reichenbach, who was the inventor of the term *odîc force* as a rational name for the producing cause; and now Mr. Crookes and his friends are endeavouring to follow the course of physical inquiry into this agency—pursuing it, however, in a different way, and by more exact methods than those used by Reichenbach.

In attempting to analyse the recent investigations on this subject, it is right to approach them with the mind disabused, as much as possible, of the natural prejudice against such beliefs—for it is highly unphilosophic to cast aside any set of observations, no matter how much we may be—on *a priori* ground—prejudiced against them; and there is no doubt these phenomena have never been hitherto fairly tested, for it is not true, as has been stated in a

recent contemporary, that these so-called phenomena were investigated and thoroughly detected as impostures fifteen years ago. The former investigation, viewed in the light of the alleged facts, is to a great extent, utterly worthless, and the time has come for a *real* scientific examination of these very remarkable statements.

With rare exceptions, the observation and production of "spiritualistic" manifestations have hitherto been under circumstances calculated to elicit suspicion, as the experiments have been mainly conducted by itinerant lecturers, making these phenomena more of a show than any thing else. Hence Mr. Crookes has really put the public under obligations to him for initiating the attempt to study these scientifically.

The case before the public at present stands thus:—A number of respectable men bear witness to having seen the occurrence of a series of phenomena entirely unaccountable by any known mode of force. Some of the descriptions are startling, but we must bear in mind that, *in their several special departments*, and in the description of so-called legitimate phenomena, the unsupported statement of any of these witnesses would be accepted as authoritative by the scientific world. The late Professor Gregory, Reichenbach, Mr. Crookes, Mr. Varley the eminent electrician, Dr. Huggins the distinguished astronomer, Mr. Sergeant Cox the acute police magistrate, Mr. Wallace the naturalist and explorer of the Malay Archipelago, De Morgan President of the Mathematical Society of London, Howitt, Chambers, and others, all testify to having seen these occurrences.

The simplest method we can adopt in very briefly examining the case as made out for spiritualism is to notice—1. The phenomena. 2. The conditions under which they occur. 3. The causes assigned.

I. The phenomena may be divided into two sets, those affecting matter and those affecting living bodies and mind. Of the first series are the table rapping, table turning, accordion playing, &c., and more recently the transport of heavy bodies (*Spiritualist*, No. 23, p. 179). The main facts attested by the witnesses may be summed up thus:—Any table hitherto experimented on, under certain conditions, has been made to display the movements; these movements do not require contact (in one of Sergeant Cox's experiments, the parties had the chairs turned with the backs to the table, knelt upon them, and held their hands over the table, but not touching it. In this case "the table moved eight inches over the carpet, and tilted several times"—Cox, p. 18.) There is one

prominent feature in these displays, namely, that they almost all are purposeless, unmeaning exhibitions of force. Rarely is there any "intelligent purpose" manifest in them. Now, there is no room to doubt that, *however caused*, these phenomena have occurred, and can be reproduced; the witnesses are too numerous and too respectable. One unwilling and unbelieving witness like Mr. Huggins is of sufficient weight to bear down all *a priori* unbelief.

The phenomena affecting mind are of a different class. We may put all such manifestations as clairvoyance, electro-biology, mesmerism in this category, as the phenomena are closely connected with those of spiritualism; but into this special aspect of the subject we will not enter at present.

II. Of vital scientific importance is a correct ascertainment of the conditions under which these phenomena occur. The first of these is one which is undoubtedly suggestive of some degree of suspicion, viz., that no manifestations take place unless a certain person called a medium be present. To use the parlance of the experimenters, the force can only manifest itself through a medium, and mediumship can only be determined by finding whether one can produce the effects or no. As most of the mediums make their livelihood by it, it is certainly suspicious that thus they should have the control of the force completely in their hands. It is right, however, to state that there are unpaid and highly respectable private "mediums" who have assisted in experiments with success. The second condition is, that the influence is not steady and uniform, but fluctuating. Mr. Crookes' now celebrated experiments give this result. One of these we will detail, and refer the curious reader for others to the sources quoted at the head of this paper, especially Mr. Crookes' own papers in the *Quarterly Journal of Science*, of which he is the editor. A mahogany board 3 feet long, by $9\frac{1}{2}$ inches wide, and 1 inch thick, was taken, and two strips of mahogany, an inch and a half wide, were screwed on at each end, so as to make two feet. One end of this board was placed on a firm table, while the other was attached to a spring balance, suspended on a tripod stand. Mr. Crookes stood on one foot on this board at the end, and his whole weight only sunk the index of the balance $1\frac{1}{2}$ to 2lbs. Mr. Home, the medium, then "placed the tips of his fingers lightly on the extreme end of the mahogany board, which was resting on the support, while Dr. Huggins and I sat one on each side of it. Almost immediately the pointer of the balance was seen to descend. After a few seconds it rose again. This

movement was repeated several times, as if by repeated waves of the psychic force. Mr. Home then, of his own accord, took a small hand-bell and a card match-box, which happened to be near, and placed one under each hand, to satisfy us that he was not producing the downward pressure. Dr. Huggins, watching the index, saw it descend to $6\frac{1}{2}$ lbs." At one time it went down to 9 lbs. "Mr. Home's fingers were not at any time advanced more than an inch and a half from the extreme end," that is, they were always over the foot.

Reichenbach's experiments were, many of them, in order to determine material conditions for the display of this force. He found that magnets, crystals, and some other substances, were favourable to the development of the force.

Dr. Hare, Professor of Chemistry in the University of Pennsylvania, invented a number of machines for the measurement and indication of this force; but they are not so simple nor so striking as those of Mr. Crookes. We believe his book, "Experimental Investigations of the Spirit Manifestations," published by Partridge, of New York, in 1858, is now out of print.

Hitherto, assuming that there is no delusion in the experiments, these are the only conditions that have been experimentally tested. If farther observations are made, the following points should be rigorously determined:—1. Whether the force, when dynamic, will affect a galvanometer, and how? 2. Whether the persons who are so-called mediums have in their organizations anything particular physically detectable (*i.e.*, whether in respect of such electrical tests, as those of Dubois Reymond, Matteucci, and others, that their bodies respond, as do those of non-mediums). 3. Whether the effects are propagated through all bodies equally? 4. Whether the manifestations of the force vary with the time of day, the degree of fatigue or freshness, mental or physical, of the medium. 5. Or with the conditions of the medium as regards food. 6. Whether the exercise of the "mediumistic" power produces any effect in the temperature, pulse, or any other condition of the individual. 7. Whether the manifestations are affected by distance, and how?

We cannot conclude this very short survey of these experiments of Mr. Crookes without expressing our opinion that the time has come when these manifestations should be carefully examined into by the highest scientific authorities, so that any sources of mistake or deception should be clearly made public; for though we hold a very decided opinion on the subject, yet it is not competent

for any reviewer to reject the evidence offered, on the ground of any *a priori* doubt. We sympathize with Mr. Crookes in the rejection of his paper by the Royal Society; and, if the public are in possession of the whole facts of the case, we certainly think that in the interests of science, he has been unfairly treated.

III. There are several causes alleged for these phenomena, but they are classifiable into four theories:—1. The delusion theory. 2. The physical force theory. 3. The psychic force theory. 4. The spiritual theory. Of the holders of the first the “Quarterly Reviewer” may be taken as a type; and two things are not to be wondered at:—1. That a very large section of the general public should hold this view. 2. That many “psychics” should be impostors. Mr. Cox claims for them “that, in *no single instance*, has ingenuity or accident discovered the contrivance by which what is seen or heard is accomplished” But he forgets the story of his own boy, told at page 3, and Mr. Collyer’s detection of a fraudulent medium, page 103. The different theories make a sort of staircase of credulity. Those that hold the second believe a little more than those that hold the first, &c.

The *a priori* argument has been used fallaciously, we think, in this inquiry. On the same ground one might deny any electrical power in the Gymnotus because the Conger had none. Besides we have undoubted reason to believe in the dynamicity of will force.

In conclusion, we think that the circumstances call loudly for a full, careful, and exhaustive series of experiments, before a large number of competent scientific witnesses, and under rigorously tested conditions, for the present state of the investigation is only enough to lead thoughtful but cautious men to the opinion that there may be “something in it,” but leaving them afraid to say how much, or to what agency it is due.

Traite de Paléontologie Vegetale. Par W. PH. SCHIMPER. Tom II., 2ieme Partie. Paris: Baillière. 1872.^a

WE hail this portion of the labours of the great Strassburg Palæontologist with great pleasure, as it embraces so much valuable matter, and summarizes the enormous details of the researches of

^a Vol. i. was noticed in this Journal, 1870, p. 192.

the author, Ettingshausen, Heer, Masolongho, &c. This part begins the description of the dicotyledons, and the author sketches briefly their history as regards time, and the history of the modern science of Palæophytogy. Scarcely any branch of knowledge has been advanced so rapidly, or at the expense of such tremendous labour as has this portion of geology; witness the magnificent monographs of Heer (*Flora Tertiaria Helvetiæ*,) and of V. Ettingshausen.—(*Physiotypa Plantarum Austriacarum*, 6 volumes, Vienna, 1856); and last, not least, the work now before us.

The careful study of the venation of the leaves of living plants, has shown that their arrangements are characteristic, and three primary types among dicotyledons are recognized—pinnate, palmate and peltate; in the first of these the midrib is the primary vein; the secondaries, simple or branched may be:—craspedodromous (extending to the margin without anastomosing with neighbouring veins); camptodromous (not extending to the margin, but curving to anastomose with neighbouring veins); brochiodromous (veinules forming a series of “lacets” diminishing in size from below upwards); marginal (as in myrtles); mixed (partly camptodromous and partly craspedodromous); dictyodromous (reticulated); acrodromous (secondary veins arising at small angles and directed towards the summit), &c. By applying these characters to the venation of the leaves of living plants, and classifying them accordingly, the pataeo-phytologists have been enabled to identify even fragments of fossil leaves, and to refer them to their proper botanical position.

It is interesting to notice the relative developments of some genera in past ages of the world's history. Thus the genus *myrica* (Gale) includes 84 fossil species; the oaks, 168; the figs, 83, &c. This volume contains the detailed account of the fossil species of *Monochlamydeas* and *Corolliflorals*, and the plates are fully as good as those of Volume I., which is the highest praise that can be given.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

Saturday, 18th May, 1872.

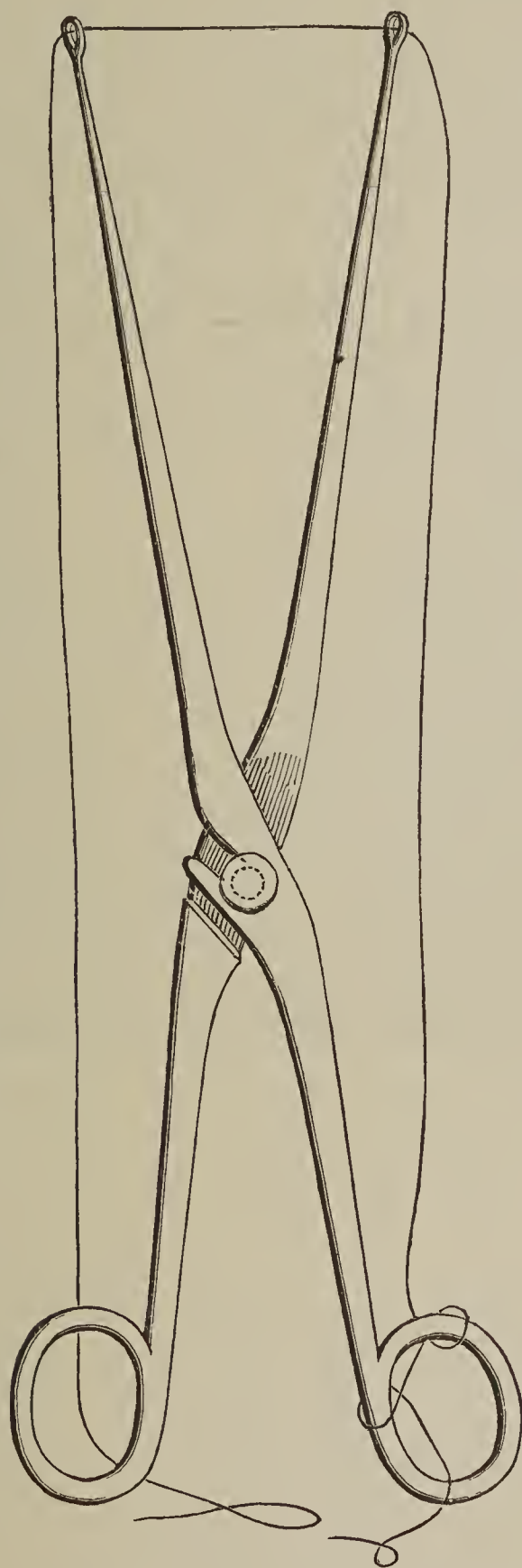
LOMBE ATTHILL, M.D., Honorary Secretary.

The President, DR. KIDD, in the Chair.

DR. DARBY detailed the particulars of the following cases:—

Anna Maria Doyle, a robust woman, aged 24 years, the mother of one child, and in the 6th or 7th month of her second pregnancy, was admitted to the Rathdown Fever Hospital in typhus fever, on the 2nd of March, 1871. Was seized with violent epistaxis shortly after midnight on the morning of the 6th. I was at her bed-side by 5 o'clock a.m., and found she had been dead for 10 or 15 minutes. The left shoulder, arm and side were swollen, black, and covered with large bullæ containing yellowish serum; the smell from the body was unbearable, and I ordered the body to be removed from the ward (in which there were 6 or 7 patients) to an empty room on the same floor. In consequence of her advanced pregnancy when admitted, I desired the nurse to be on the watch for uterine symptoms. None such presented up to the time of her death, nor, after the removal of the body to the vacant room, when it became the duty of the nurse to make a special examination, was there any discharge or other circumstance to attract attention; in 6 or 7 hours afterwards the nurse had occasion again to enter the room; she then observed that a putrid foetus of about the 6th month with the secundines had, subsequently to her previous visit, escaped from the dead body; all this was reported to me. I saw the foetus, and have no reason to doubt the accuracy of the nurse's account of the circumstances connected with this rare and interesting case. A question as to whether *post-mortem* parturition results from vital organic action of the uterus after the death of the individual, or whether *rigor-mortis* may be sufficient to expel a foetus from an already dead body, or whether the rapid generation of gases therefrom, may not, with more probability, be the producing cause of the phenomenon, is a matter of

grave consideration both in its physiological and medico-legal aspects, and while I abstain for the present from offering any decided opinion on these points, I hope some member present may be induced to initiate a discussion which may let in some light upon a subject which requires further elucidation.



Margaret Cooney, aged 25, was admitted to the Rathdown Infirmary complaining of bearing down pains and some uterine hæmorrhage. On examination the abdomen presented the appearance usual about the 6th

month of pregnancy. She stated that until a fortnight before her admission she enjoyed her usual health, about which time she menstruated, but on cross-examination she admitted having suffered for nearly a year from menorrhagia. On digital examination, per vaginum, something was felt protruding from the os, which felt like a coil of the funis, the speculum revealed a mulberry coloured body in this position: along the posterior wall of the uterus the sound passed with facility to the extent of 8 inches, while anteriorly it could only be passed to the extent of $2\frac{1}{2}$ inches; her health beginning to suffer from pain and hæmorrhage, it was determined to endeavour to remove the tumour. Sea-tangle and sponge tents were introduced to the os, until sufficiently dilated. A tumour of a fibroid character about the size of the head of a full grown foetus was discovered, and with the assistance of my friends Dr. Symes and Dr. Mayne, on the 17th June, an attempt was made to remove it. The tumour was drawn down with a vulcellum and hempen ligature passed through the eyes in the blades of the forceps (the blades of which are easily separated and reunited—see p. 237), was carried round the tumour as high up as possible, and a portion, about 3 inches long by $1\frac{1}{2}$ thick, was removed. The following day the patient was feverish and exhausted. After the lapse of a week (the 14th March), the operation was repeated. On this occasion I had the advantage of the able assistance of Dr. M'Clintock, together with Drs. Symes and Mayne, when a very large amount of the tumour was removed piecemeal; there was no hæmorrhage, and although the operation was tedious and fatiguing, the poor woman bore it very well. For several days after this there was a profuse foetid discharge of bloody serum, containing copious shreds from some portion of the tumour not removed; this discharge continued more or less for a fortnight, the patient gradually improving. She is now, I saw her yesterday (14th June), quite restored to health, and free from all annoyance.

On the Fall of Temperature accompanying Great Wounds by Fire-arms.

By PAUL REDARD. Abridged from a Translation by ARTHUR E. J. BARKER, L.R.C.S.I.

SOME time ago Mr. Barker was so kind as to furnish us with a full and careful translation of M. Paul Redard's paper, which appeared in the *Archives Generales de Médecine*. We were very anxious to publish the translation without abridgement, but the accumulating pressure on our space has rendered that impossible, and we are compelled to offer our readers an epitome of M. Redard's interesting memoir, made by us from Mr. Barker's excellent translation.

Though increase of the temperature of the body above the standard of health has attracted so much attention, the reverse phenomenon has not been sufficiently studied. Brown-Sequard, however, has shown that, when in illness, or after wounds or poisoning, the temperature falls a certain number of degrees, there is danger of death solely as a consequence of the fall.

Long continued exhausting discharges, want of sufficient nourishment, and hæmorrhage, have been observed to produce this fall of temperature; but in a more marked manner has it been seen to follow extensive burns, and to occur in uræmia, in sudden ammonia blood-poisoning, in certain cases of septicæmia, sometimes in chronic peritonitis, in internal strangulations and wounds of the intestines (Demarquay), immediately after apoplectic seizures (Charcot), generally in lesions of the spinal cord and in compression of the brain as in hydrocephalus. Hirtz gives as a pathognomonic sign of tuberculous meningitis a fall of temperature coming on at the prodromic period of the malady. A fall of temperature has also been observed after the termination of fever, pneumonia, &c. (the defervescence of Traube), and in various maladies which impede the circulatory and respiratory functions. The administration of digitalis and of tartar emetic has the same effect; alcohol as a veritable retarder of molecular interchange causes frequently a considerable fall of temperature, in the acute stage of drunkenness M. Redard has often observed a temperature of 36° ($96^{\circ} 8'$ Fahrenheit).

Placed during the latter period of the French war—the struggle between the regular army and the Federals—in the ambulances "*de la Presse*" (in the service of his master, M. Demarquay), M. Redard had ample opportunities of noticing the effect of injuries by fire-arms in lowering the temperature; every time a patient suffering from a grave wound from a fire-arm was observed by him a lowering of the temperature of the body was found. In most of the cases the injuries had been inflicted by the bursting of shells, but in some they had been caused by cannon-balls shattering limbs, and in the instances of the Federals the

wounds had usually been received while they were in a state of intoxication. In such M. Redard found a wound produced a much greater fall of temperature than did one of equal extent in men of temperate habits, and in them amputations were most unsuccessful. He, therefore, quite endorses the dictum of M. Verneuil, that the prognostic of traumatic lesions, all other things being equal, present an exceptional gravity amongst subjects addicted to drinking chronically. The author narrates his observations in fifty cases, and concludes his memoir with the following deductions:—

“1. In great injuries by fire-arms fall of temperature is a constantly observed fact.

“2. Several elements come into play in producing this fall. Amongst the principal we will mention—nervous shock, the excitement of the combat with consecutive stupor, hæmorrhage, and lastly, alcoholism.

“3. Every wounded man brought into an ambulance with a grave wound, which seems to necessitate an operation, and who shows a temperature below $35^{\circ} 5'$ (95.9 Fahr.), will die, and ought not consequently to be operated on.

“4. Every wounded man in whom a salutary re-action is not produced within four hours, and by whom the re-action is not a direct sequence of the fall of temperature, must be considered as very gravely injured.

“5. Burns give rise to an exceptionally great fall of temperature.

“6. The same is the case in wounds of the abdomen. The fall is the more marked the nearer the wound approaches the stomach.

“7. The diagnosis of penetrating wounds may become less difficult, on account of the characteristic thermometric phenomena to which they give rise.

“8. The state of intoxication in which the wounded are sometimes found favours singularly the observed fall of temperature.

“9. Wounds by shells, all other things being equal, produce a fall of temperature more accentuated than those by balls.”



THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

OCTOBER 1, 1872.

PART I.

ORIGINAL COMMUNICATIONS.

ART. VII.—*Reports in Practical Surgery.* By BENJAMIN F. M'DOWELL, M.B., Univ. Dub.; Fellow of the Royal College of Surgeons in Ireland; Surgeon to Mercer's Hospital, Dublin; Lecturer in the Ledwich School of Surgery, &c.

REMARKABLE CASE OF "MARJOLIN'S WARTY ULCER," INVOLVING A LARGE PORTION OF THE INTEGUMENT COVERING THE FORE-ARM, ARM, AND RIBS—AMPUTATION THROUGH THE SHOULDER-JOINT—RECOVERY.

THE "warty ulcer of Marjolin" is a peculiar form of disease of the integument which is apt to attack the cicatrices left after lacerated wounds, burns, or scalds, or severe floggings. It is generally ushered in, or is accompanied, at some period of its growth, by a peculiar warty excrescence in its centre. It is also characterized by gnawing pain, intractability to treatment, by occasional hæmorrhages, by eating, and irregular ulceration of the marginal integument. Subsequently, degeneration of the osseous structures, lymphatic infiltration, and general contamination of the blood, cachexia, and hectic, supervene.

The disease was first described by Marjolin, in the twenty-first volume of the *Dictionnaire de Médecine*, in 1828. He applied to it the term "warty ulcer;" hence it is generally referred to as the "warty ulcer of Marjolin." Several papers have appeared from

time to time, since the date of that publication, upon the disease, but a very elaborate essay has proceeded from the pen of Dr. Robert W. Smith, the distinguished professor of surgery in the University of Dublin. Dr. Smith's essay will be found in the ninth volume of this Journal, May 1st, 1850. In it will be found an accurate description of the nature and structure of this remarkable ulcer, as well as a *resumé* and analysis of the various writings published on the disease.

Under these circumstances any lengthened historical or pathological account of the disease is now uncalled for. From my experience, and what has been written upon the subject, I look upon the ulcer as being certainly malignant in its nature; nevertheless, it appears to possess the power, only in a modified or remote degree, to contaminate the system; and I cannot but believe that the great majority of cases would, if taken at the proper time, be within the range of successful surgical treatment. The great fatality which has attended the disease after operation appears to have been due to the fact that the proper treatment was postponed too long by the surgeon, or that he was not consulted before the system had yielded to the contaminating influence of the malady.

It is chiefly because I am of opinion that sufficient encouragement has not been afforded to the practical surgeon to operate in this disease by the cases which have been published upon the subject, that I venture to submit this paper:—

John Harty, aged forty-two, a man of about 5 feet 10 inches, and of large frame, was admitted to Mercer's Hospital on the 23rd May last. He appeared at that time to be between ten and eleven stone in weight. He was placed under my care by my brother, Dr. F. Victor M'Dowell, Physician to the Ballickmoyler and Newtown Dispensaries. He brought with him the following letter from Dr. M'Dowell:—"The bearer appears to suffer from a good example of the '*warty ulcer of Marjolin.*' He is reduced to the last extremity from pain, want of sleep, and distress of mind. Although his case is an unpromising one, perhaps you may be able to do something for him. Will you take him into Mercer's Hospital? My neighbours, Drs. Jacob and Hobson, are, I know, also much interested in him."

Upon examination an ulcer was found upon his right fore-arm and the lower third of his arm, which covered an area of about the size of a sheet of foolscap paper. He stated that when he was five

years of age his clothes took fire, and he received an extensive and deep burn, which reached from the right ear to the last rib on the same side, and included a large portion of the integument of the arm and fore-arm. For twelve months he lay under it. Its severe as well as extensive nature may be realized, when it is mentioned that the upper two-thirds of his arm was bound to his side by one broad band of cicatricial tissue, without even a sulcus to indicate its anterior or posterior aspects. This cicatricial band reached from the sternum round to the spine. About two inches above the elbow-joint his arm was released, but from that point to the elbow it was completely covered by a cicatricial investment. His fore-arm was burnt in about three-fourths of its extent, its posterior surface and his hand escaping. The utmost extent to which he could separate his elbow from his body was therefore only about two inches. His elbow-joint became partially ankylosed; nevertheless there was not as much atrophy of the limb as might have been expected, and he was always able to use it and earn his bread. He selected the occupation of ploughman, which did not require much motion of the limbs, and latterly he had employed himself driving a cart. The head of the humerus was completely dislocated out of the glenoid cavity, and lay internal to the coracoid process, and just under the acromial end of the clavicle. It appears to have been gradually lifted out of the articulation by his exertion in working as he grew up, and was now situated under the tendon of the pectoralis minor.

History of the invasion and growth of the Ulcer.—Up to about the summer of 1870, he stated that he enjoyed excellent health, when he observed a crack in the skin, at the bend of the elbow, in the ante-cubital fossa. This did not trouble him for some time, until, having become gradually enlarged into an ulcer, it began to cause him uneasiness and pain. At the end of a year—that is, in the summer of 1871—he was sent to a Dublin hospital; at this time the sore had attained the size of a half-crown piece. He remained in the hospital for about seven weeks. Whilst under treatment there several caustic applications were employed; subsequently the ulcer was blistered, after which “skin grafting” was tried. These measures unfortunately failed to afford him relief; on the contrary, he left the hospital, having been in no way relieved, and with the ulcer much increased in size. He accordingly went home, and for the next six or seven months he consulted one medical man after another in the part of the country in which

he lives. Meanwhile the ulcer steadily increased in size, and assumed the characteristic warty type; it also became more painful, especially at night, so that he enjoyed but little sleep, and it used to bleed upon the slightest touch. His health now began to give way rapidly, and he was in a desponding state. Dr. M'Dowell, of Ballickmoyler, first saw him about last Christmas, when he advised him to proceed again to town, as he considered that the complete extirpation of the ulcer was the only means of prolonging his life. The patient at the time refused, but, thinking better of it, in May last he changed his mind, and, receiving an order for admission, he placed himself under my care in Mercer's Hospital.

The illustration which accompanies this paper is taken from a beautiful coloured drawing by Mr. Burnside. It gives a very accurate representation of the ulcer, and the condition of the limb after his admission to hospital.

It was plain that nothing short of amputation through the shoulder-joint was practicable, or could be of any avail, but, considering the altered state of the parts, with the arm fused thoroughly into the side, and covered and surrounded by unhealthy tissue, and the vessels, of course, disturbed and diverted from their normal route and relations, this measure could not, whether having regard to the immediate consequence of the operation itself, or its result, be looked upon as other than an unpromising undertaking.

The state of his case was now placed before the poor fellow in all and its worst aspects, but he, exhausted by continued suffering and apprehension, requested the operation to be performed. Upon consultation with my colleagues, amputation through the shoulder-joint was agreed to; and Tuesday, the 4th June, was accordingly fixed for its performance. Meanwhile every possible effort was made to pull up the man's strength, which was now greatly reduced by continued suffering, want of sleep, and apprehension, so that he had become utterly prostrated and wretched. He was ordered light nutritious food at frequent intervals, and he was abundantly supplied with wine. A pill, containing a grain of opium, a grain of quinine, and a grain of camphor was administered three times a day, and a soothing draught the last thing at night. The ulcer was dressed with a bread and water poultice, saturated with a wash containing the watery extract of opium, and solution of the bisulphite of calcium. He was prepared for the operation by an aperient enema, which was administered to him the night before. This acted most satisfactorily, the bowels being fully and freely

moved. He was allowed no breakfast in the morning; but, at eight o'clock, half-a-pint of hot new milk, in which was mixed a beaten-up egg and a glass of brandy and some lump sugar, was given to him in one draught instead.

At 10 o'clock, with the assistance of my colleagues, I proceeded to operate. The chloroform was administered by Dr. Mason; and the patient, after a few minutes, passed into a tranquil state of insensibility; scarcely what would deserve the name of a spasm having occurred during its inhalation. I commenced by a simple linear incision carried over the head of the humerus as it lay in its abnormal position under the acromial end of the clavicle; this incision was prolonged obliquely downwards and outwards over the track of the bone, until it reached a point about an inch from the superior margin of the ulcer. A second incision, carried in the same direction and in the same groove as the first, brought the knife fairly upon the bone, and exposed it, on the upper two-thirds of its extent. With a large silver knife I now carefully detached the head and neck of the humerus from its abnormal attachments in its dislocated position. The elbow was then pressed into the side, and afterwards pushed well backwards; by this manœuvre the head of the bone was lifted out of its bed, and, the soft parts having been well held aside by retractors, I was enabled to sever the humeral attachments of the pectoralis major, and latissimus dorsi, and teres major and minor muscles, and completely free and clear the bone down to the terminal point of my first incision. With one sweep of the knife I now, cutting from without inwards, severed the whole limb from the body, including in the cut all the ulcerous portion of integument which lay over the ribs. Five vessels required ligature, and were secured without difficulty. The axillary artery was found to be very much atrophied. It could scarcely be said to be larger than the other vessels. The vessels all appeared to be very much of the same calibre; that is, about the size of the radial or ulnar arteries in the natural state of the parts. During the operation they were admirably guarded, and the hæmorrhage skilfully controlled and arrested by Mr. O'Grady. In the upper part the lips of the wound came well together; below, however, about the size of a breakfast plate of raw uncovered surface was left over the ribs. All the raw surface was mopped over with a 20 grain solution of chloride of zinc. No sutures were employed, for obvious reasons; and it was determined to leave the wound exposed for some hours to glaze. The patient was now

removed to a comfortable warm bed, which was kept ready for his reception.

For about an hour everything went on satisfactorily, but when reaction had thoroughly declared and established itself, there was a considerable weeping of blood, which issued, as it would appear, from the whole surface of the wound. As the man was low and weak this caused me considerable anxiety. Upon close examination, aided by candle-light, I ascertained that it proceeded entirely from a number of small vessels which supplied the abnormal capsule from which the head of the humerus had just been removed. I used every expedient I could think of to arrest this, but without avail; styptics and pressure were of no use; torsion or the ligature impracticable, owing to the number and depth of the little vessels, and the utter impossibility of isolating them, so that I really became apprehensive for my patient's safety.

At length, lifting up the whole mass of structure from which the hæmorrhage proceeded, I passed a long and stout acupressure needle under it, securing it firmly to the needle by silver wire, passed again and again round the latter in a figure of eight manner. To my great satisfaction and relief, this resource of practical surgery at once and permanently arrested the hæmorrhage; and although the instrument had necessarily to be passed very deeply, so as to be carried completely under the vessels, no untoward sign or symptom followed to indicate the injury of the important vessels and nerves in its immediate path. Soon afterwards my patient, wearied by watching and apprehension, passed into a quiet sleep, in which he remained for four hours.

At 9 p.m. I withdrew the acupressure needle, and drew together, with strips of soap plaster, the upper two-thirds of the wound; below, strips of lint steeped in an aqueous solution of carbolic acid were applied lightly over the raw surface, and the edges of the wound were well drawn up towards each other by broad strips of soap plaster supported by oblong pads, and reaching from the spine to the umbilicus. It is not necessary to record the daily progress of this case, as no unusual line of treatment was called into requisition or adopted. Nothing but the simplest measures were needed, employed after the ordinary rules of surgery. The case was happily one of steady progress to recovery from the first.

On the ninth day after the operation all the ligatures had come away, and in three weeks afterwards the man was up and about. On the 27th July he was discharged the hospital quite well, and

vastly improved in health and spirits, and up to this time there has been no return of the disease. A careful examination of the bones after the operation showed that all three—the radius, ulna, and humerus—were considerably hypertrophied and condensed in structure, but there was no softening or pus-infiltration in any one place.

It is now only four months since the foregoing operation was performed, and it is, of course, impossible to tell, after so short an interval, what may be the result, but the present condition of the patient augurs well for the future; and it is very gratifying to see a human being in the enjoyment of rude health now, and following his usual avocation, who, but a few months ago, was in a state of total helplessness, prostration, and misery.

The following *resumé* of an interesting case of this disease, which occurred also in my own practice, affords very great encouragement to the operating surgeon. A full account of the case, accompanied by an excellent lithographic engraving after Burnside, will be found in the *Medical Press and Circular* for June 30th, 1869; it appears in that journal under the head of “Lupoid Ulcer of the Leg with extensive Warty Growth.” The appellation “Lupoid Ulcer” was employed at the time, because I really was not acquainted with all the distinctive characteristics of the warty ulcer of Marjolin, although I believed, from what I did know then, that it resembled that disease, and I stated so in my observations; I have now no doubt but that the ulcer was a peculiarly typical example of it. The subject was a man over seventy years of age, over six feet in height, and of very large frame. He was admitted under my care to Mercer’s Hospital in August, 1868, suffering from a large ulcer, with extensive warty growth, which was situated upon the anterior and internal surface of the inferior third of the right leg. The history pointed to a very severe injury of the soft parts, which happened thirty-five years previously, and from *the cicatrix of that injury* the ulcer and warty excrescence developed themselves. I amputated the man’s leg below the knee, and he made a fine recovery, being able to leave the hospital after six weeks with a useful stump and much improved in health. Speaking of the ulcer, the following passage appears at the close of my observations on the subject:—“I have applied the term ‘cancroid or lupoid’ to it, because I believe, from its obstinacy to treatment, its irregularity of outline, its everted edges, and the hæmorrhages by which it was attended, that it may fairly be classed in *the category of malignant diseases*.” And yet, now, after an interval of four years,

the patient upon whom the operation was performed is, I believe, in excellent health.

The following case also is one of great interest, and it is, no doubt, an unmistakable example of Marjolin's ulcer.

It has been alluded to by Professor Smith in his paper already referred to; it will be found, amongst many other cases, in the twenty-fourth volume of the first series of this Journal, under the heading of "Malignant Cutaneous Diseases of the Extremities and Trunk of the Body," by the late Dr. Byron, whose paper I commend to those interested in the subject.

The following is the account of the case given by Dr. Byron:—

"Cutaneous Cancer arising in Old Cicatrices.—John Leonard, farmer, aged fifty-two years. When about four years of age received a severe burn upon the upper part of his right foot, involving three of his small toes. An old adhesion seems to have formed between the little and adjoining toes. No inconvenience was, however, experienced from this accident, and the consequent deformity, beyond a slight tenderness in the new skin, until about two years before seeking my advice, at which time a soft wart sprang up from the cicatrix at the base of the first phalanx of the third toe; this soon after extended itself, accompanied by sharp pain in the part itself, and also shooting up the leg and foot. The report taken at the time runs thus:—‘The greater part of the cicatrix is thick, hard, and elevated. A soft wart-like excrescence occupies the entire upper surface and the sides of the two smallest toes, and also the dorsum of the foot for the extent of a copper penny piece, but was extremely irregular in its outline as also upon its surface. In some places this prominent mass seemed made up of tolerably smooth, rounded tubercles, of various sizes, varying from that of a grain of wheat to a hazel-nut, leaving sulci between, from which issued a thin whitish discharge, mixed with blood. More prominent points were, however, visible, especially about the junction of the little and adjoining toes. These pendulous masses seemed made up of fibres loosely held together, and, *en masse*, so feeble as to bend by their own gravity. Pain in the affected part and up the limb had now increased to such an extent as to render his nights sleepless. His constitution too, which was remarkably good, became wasted; his appetite bad; and he suffered much from apprehension also. No time was lost in removing the limb; it was amputated immediately above the ankle-joint. The stump was healed three

weeks after the operation. His rest, health, and spirits were speedily restored, and now, a period of 23 years after, he is in the perfect enjoyment of rude health.'"

In a short paper, "On Tumours of Cicatrices," by Dr. John Macpherson, Civil Assistant Surgeon at Howrah, four interesting cases of this disease are published. Dr. Macpherson's paper will be found in the *London Medical Gazette* for December 13th, 1844. Dr. Smith, in his very able paper, details the particulars of four cases, three of which terminated fatally within a short period after operative measures were adopted. In the first case published by that surgeon, death took place within fourteen days; in the second within two months; and in the fourth within a year. In the third case the patient lived for seven years after the performance of the operation without any return of the disease, when she died of fever. The fourth of Dr. Smith's cases abundantly proves the malignant and contaminating nature of the disease. The subject of the ulcer was a patient aged sixty. The disease had existed about four years. The ulcerous mass was removed by the late Mr. Carmichael. In eight months, however, it returned, in the form of a tumour in the groin, and soon carried off the patient. "After her admission the progress of the tumour was rapid, the skin assumed a lurid aspect, became attenuated, and an opening formed, from which a fungus growth sprung up, which yielded an unhealthy discharge, and bled occasionally. Death soon followed, after which the size of the fungus diminished at least one-half. A section of the tumour exhibited the usual and well-known characters of encephaloid growths."

As regards the treatment of this ulcer, we must, of course, be guided by the individual circumstances of each case which is presented to us. The surgeon, however, who depends upon the constitutional remedies for skin diseases is simply trifling with the disease, while he incurs a grave responsibility—the happy period to save a life from the inroads of the poison may be allowed to slip meanwhile. There is but one course; and that is, early and complete extirpation of the ulcerous mass, and, if necessary, the removal of the limb upon which it has appeared. As regards treatment by caustics, there are cases to be met with in which, no doubt, they are applicable; but, according to my judgment, they must be very few indeed in which they would be effectual in eradicating this disease. Except in those rare cases in which we have the opportunity afforded us to employ them soon after the

invasion of the ulcer, I believe caustic to be worse than useless; and I cannot but think that many cases, which might have been successfully cured by removal with the knife, have been rendered hopeless by their employment. If the ulcer be not completely destroyed by their use, the sufferings of the patient are generally aggravated. There is a determination of blood to the parts, and frequently an amount of inflammation is excited by their application sufficient to torture the patient for hours, and yet inadequate for the attainment of the great object at which we aim—namely, the death and separation of the diseased mass. After their employment under these circumstances, the ulcer often spreads rapidly, and becomes more painful; and so, I believe, cachexia and hopeless blood-contamination are more likely to supervene.

ART. VIII.—*Report on Cutaneous Statistics, derived from the Practice of the Belfast Hospital for Skin Diseases.* By HENRY SAMUEL PURDON, M.D., Physician to the General Hospital, also to the Hospital for Skin Diseases, Belfast.

IN the present paper my object is to direct attention to the statistics derived from the practice of the Belfast Hospital for Diseases of the Skin. Of late much has been written upon the importance of cutaneous statistics; for instance, the valuable tables, &c., compiled by my esteemed friend Professor Erasmus Wilson, and published in the late *Journal of Cutaneous Medicine*, Vol. iii., of 10,000 consecutive cases of cutaneous disease as occurring amongst the wealthier classes, not only in London, but also from all parts of the United Kingdom, have been highly interesting and valuable to the student of dermatology. I take, however, an humbler sphere, as the following statistics are derived from hospital practice, and represent the prevailing skin diseases occurring amongst the poorer classes met with in Belfast and immediate neighbourhood during the last seven years. I claim also for my statistics a national importance, as our hospital for skin diseases is the only one of its kind in Ireland: true, there are dispensaries for the treatment of affections of the skin, but our institution has been specially built for the purpose; has beds, baths, and other appliances, also a weekly attendance of about 100 or more at the extern department. The opportunities thus offered for the study of dermatology have

been embraced by a large number of the students attending the Belfast Queen's College.

I had intended to compare my statistics as regards the relative frequency of cutaneous affections with those derived from the practice of similar institutions in some of the large cities of England and Scotland, and for which purpose I wrote for their annual reports. I regret to say that the majority give no information on this point, except that from the Glasgow Dispensary for Skin Diseases, which has a table of 11,738 skin cases admitted during the past eleven years, arranged in an accurate manner by my friend and former teacher, Dr. M'Call-Anderson. At this institution a clinique is held during winter, and which, several years since, I had the privilege of attending. The total number of cases observed at the Belfast Skin Hospital during the last seven years amounts to 5,747. Leaving out the odd 47, which includes cases of the exanthemata as variola met with during the late epidemic, varicella, and scarlatina, we have in round numbers 5,700 to deal with, and which may be classified as follows:—

Character of Disease				Number of Cases	Relative Frequency	Remarks
INFLAMMATIONS OF THE SKIN.						
<i>Superficial.</i>						
Erythema	-	-	-	63 or 1 in	90	Including roseola and strophulus.
Eczema	-	-	-	1,326 „ 1 „	4	Including lichen and impetigo
Acne	-	-	-	92 „ 1 „	62	Including rosacea.
Ecthyma	-	-	-	11 „ 1 „	518	Occurred in cachectic subjects.
Ephyma globulus	-	-	-	1 „ 1 „	5,700	Common in Ireland during famine years, when called "button scurvy."
Rupia	-	-	-	3 „ 1 „	1,900	Non-syphilitic.
Psoriasis	-	-	-	118 „ 1 „	49	More common in the wealthier classes.
Dermatitis	-	-	-	128 „ 1 „	46	Including erysipelas, pernio, and burns.
Impetigo capitis	-	-	-	255 „ 1 „	22	A few cases of impetigo—Contagiosa of Dr. Tilbury Fox.
<i>Deep.</i>						
Furunculus	-	-	-	56 „ 1 „	101	Sometimes complicated with diabetes.
Anthrax and carbuncle	-	-	-	28 „ 1 „	204	
Ulcers	-	-	-	521 „ 1 „	10	Including the eczematous ulcer—skin grafting used in some cases.

Character of Disease	Number of Cases	Relative Frequency	Remarks
NEUROSES OF THE SKIN.			
Herpes - - - -	34 or 1 in	178	Principally "shingles."
Pemphigus - - - -	21 " 1 "	281	
Urticaria - - - -	64 " 1 "	90	Generally met with in the summer and autumn.
Prurigo - - - -	43 " 1 "	134	Iodoform and iron have been lately used.
Dermatalgia - - - -	2 " 1 "	2,850	One case due to hysteria.
Morphœa - - - -	3 " 1 "	950	Treatment only palliative.

PARASITIC DISEASES OF THE SKIN.

Animal.

Scabies - - - -	875 " 1 "	6	
Phtheiriasis - - - -	138 " 1 "	42	It will be observed that the principal skin diseases amongst the hospital patients are either from neglect of personal cleanliness or from contagion; whilst in the wealthier classes hereditary tendency or debility.

Vegetable.

Tinea Circinata - - -	78 " 1 "	73	Liquor potassæ painted on the affected parts gives good results.
„ Tonsurans - - -	20 " 1 "	285	
„ Versicolor - - -	23 " 1 "	248	Solution of bichloride of mercury removes the disease very rapidly.
Alopecia areata - - -	20 " 1 "	285	
Sycosis - - - -	10 " 1 "	575	
Favus - - - -	21 " 1 "	281	Epilation, oil of cade to remove crusts, then carbolic acid lotion is the method adopted.
Favus et Tinea Circinata - -	3 " 1 "	950	

DISEASE OF ACCESSORY ORGANS.

Glands.

Molluscum sebaceum - -	9 " 1 "	638	Could not obtain any his- tory of contagion.
Comedones - - - -	2 " 1 "	2,850	
Ephidrosis - - - -	1 " 1 "	5,700	
Seborrhœa Sicca et Oleosa -	13 " 1 "	519	Three cases S. oleosa.

Hairs.

Fragilitas Crinium - -	1 " 1 "	5,700	
Alopecia - - - -	12 " 1 "	519	

Character of Disease

Number
of CasesRelative
Frequency

Remarks

DISEASE OF ACCESSORY ORGANS—*con.**Nails.*

Onychia	-	-	-	-	43 or 1 in	134	Evulsion, or excision of matrix, the treatment adopted.
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Blood Vessels.

Nævus	-	-	-	-	6 „ 1 „	950	Ligature used in some cases, pressure in others.
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FUNCTIONAL AFFECTIONS OF THE SKIN.

Atrophia Cutis Linearis	-	-	-	-	1 „ 1 „	5,700	
Cacotrophia Cutis	-	-	-	-	1 „ 1 „	5,700	

HÆMORRHAGES IN THE SKIN.

Purpura Hæmorrhagicum	-	-	-	-	8 „ 1 „	638	Ergot and turpentine chiefly used.
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NEW FORMATIONS.

Epidermic.

Clavus	-	-	-	-	13 „ 1 „	519	
Xeroderma	-	-	-	-	6 „ 1 „	850	Mostly congenital.
Ichthyosis	-	-	-	-	1 „ 1 „	5,700	
Cornu Cutaneum	-	-	-	-	1 „ 1 „	5,700	

Pigmentary.

Nævus Spilus	-	-	-	-	2 „ 1 „	2,850	
Ephelis	-	-	-	-	5 „ 1 „	1,140	
Leucoderma	-	-	-	-	2 „ 1 „	2,850	

Dermic.

Lipoma	-	-	-	-	1 „ 1 „	5,700	
Encysted Tumours	-	-	-	-	21 „ 1 „	281	Some tumours treated by injection of solution of pepsine.
Verruca	-	-	-	-	17 „ 1 „	335	A few cases required a course of arsenic.
Cicatrix	-	-	-	-	9 „ 1 „	638	
Keloid (True)	-	-	-	-	1 „ 1 „	5,700	
Elephantiasis Arabum	-	-	-	-	3 „ 1 „	950	One case elephantiasis of upper extremity—patient a female.
Scleroderma	-	-	-	-	1 „ 1 „	5,700	Treatment only palliative.

Pseudoplasmata.

Lupus Vulgaris	-	-	-	-	105 „ 1 „	54	Patients generally strumous.
Lupus Erythematosus	-	-	-	-	4 „ 1 „	1,425	Family history in these cases showed hereditary debility.
Leprosy Tubercular	-	-	-	-	1 „ 1 „	5,700	

Character of Disease	Number of Cases	Relative Frequency	Remarks
NEW FORMATIONS— <i>con.</i>			
<i>Neoplasmata.</i>			
Epithelioma - - - -	30 or 1 in	190	
Rodent Ulcer - - - -	2 „ 1 „	2,850	
SYPHILIS.			
Primary Accident - - -	11 „ 1 „	1,518	
Secondary and Tertiary Eruptions	408 „ 1 „	14	Some cases complicated with diseased bone, &c.
Infantile Syphilis - - -	56 „ 1 „	101	One case of vaccinal syphilis; some treated with chlorate of potash, majority with hyd. c. cret.
SCROFULA.			
Scrofuloderma, Adenitis, &c.	856 „ 1 „	6	Recently Mr. Jordan's plan has been tried to glandular enlargements, viz., pressure with a bag of shot and perpetual blister near affected part.

The following brief notes may not be uninteresting. The only variety of *erythema* worthy of note, and of frequent occurrence amongst factory workers, who go barefooted and stand at their work for hours, is *erythema nodosum*, and to which affection I called attention in a late number of this Journal (*Dublin Medical Journal*, June, 1872); the treatment, &c., was then described. *Eczema*, with the exception of scabies, is the most common form of skin disease. For acute cases painting the part attacked with a solution of nitrate of silver dissolved in sweet spirit of nitre, and subsequently covering with zinc ointment, or an ointment of zinc, prepared chalk, and a few drops of carbolic acid, to allay itching, is the plan adopted. If the part be covered with hair, dilute citrine ointment, and carron oil, answers admirably. For chronic cases Hebra's methods of treatment with solutions of potassa fusa, tar, oil of cade, black soap, &c., are adopted. Carbolic acid has not succeeded in my hands in eczema, although highly valuable in psoriasis when there is not much hyperæmia of the skin, used both outwardly and internally. I agree with Mr. Erasmus Wilson, that the cause of eczema is debility, and adopt his arrangement, viz:—into assimilative, hereditary, neurotic, and local, as the best and most satisfactory division of its causes.

Arsenic has not been much used in the treatment of eczema at our hospital, as when the disease is generally seen it is chronic, has become purely a local disease, accompanied by alteration in the cutaneous textures, and hence must be treated by local means. *Acne* is in the majority of cases due to stomach derangement, occasionally to uterine trouble; for hypertrophic acne nothing excels Mr. Wilson's hypochloride of sulphur ointment. All cases of *herpes zoster* (viewing this affection as a neurosis) have been recently treated with ergot of rye and steel, and that most satisfactory, whilst locally merely zinc ointment, or painting the vesicles with collodion, was all that was considered necessary. During last year two cases of *urticaria* were beautiful examples of *urticaria annulata*, a rather rare variety. *Colchicum* was the remedy mainly relied on, followed by the hypophosphite of soda. The case of *dermatalgia*, or neuralgia of the skin, occurred in one person on the scalp; patient an adult male, who got well with pulv. ferri carb. and pulv. valerian, assisted by hypodermic injection of morphia. My cases of *morphæa*, which disease shows a degeneration or degradation of tissue, derived only temporary benefit. The treatment of *scabies* has been often varied: Hebra's ointment, compound sulphur ointment, iodide of potash ointment, and solution of the pentisulphide of lime are those generally used. The secondary eczema left after removal of original complaint has to be attended to afterwards. *Alopecia areata* is usually chronic. Constant blistering with the linimentum cantharidis and attending to the general health gives, although slowly, good results. This affection I have placed amongst the parasitic diseases, but more accurate information is required regarding its supposed fungoid nature. I prefer, however, to leave it where it is at present. I have never detected the fungus called the *microsporon Audouini*. Recent observers believe the disease to consist of an atrophied condition of the hair bulb, whilst, on the other hand, Tilbury Fox, M'Call-Anderson, and Bazin, hold to the parasitic view. Some years ago, when studying cutaneous diseases in London, I was much struck by the frequency of alopecia areata there compared with Glasgow, Dublin, Edinburgh, or Belfast, in all of which towns I had opportunities of seeing cutaneous practice. *Favus* is rare in England, and not so common here as in Scotland. M'Call-Anderson's statistics show 166 cases of favus occurring in 11,738 skin diseases of all kinds, whilst mine exhibit 21 cases in 5,747. The cases classed in my report as *Favus et Tinea cincinata* are interesting

as showing the two diseases existing together. The Sydenham Society have published in their Atlas a very good plate of these two diseases occurring in the same individual. This supports the theory of only one fungus causing this group of diseases, which in a more matured form and stage of growth may give rise to favus.

Sycosis.—One case of sycosis is worthy of note. By this disease I mean *parasitic* sycosis. The patient to whom I more particularly refer was aged 58, and worked in a foundry. Both he and his son-in-law were attacked at same time and with same affection. The elder had tubercles the size of a walnut under his chin, slowly suppurating; in fact every part of his face that had hair upon it was involved. The treatment pursued was extracting the hairs by Bazin's forceps, made by Mathiew, Paris, then a solution of the bichloride of mercury, two grains to the ounce, was rubbed in, a little sweet oil being finally applied. After the disease seemed arrested, dilute citrine ointment, also a solution of nitrate of silver, were used. Quinine was given from the first. *Seborrhœa Sicca*, or "dandriff," generally commences on either temples, extending backwards, and leaving a central region covered by hair; the baldness produced is usually permanent. The application of a lotion containing tannin, ether, glycerine, compounding spirit of lavender and rectified spirit, has been found useful. *Onychia* is very common amongst our female mill workers in flax-spinning mills. They go bare-footed, and a slight injury to the toe causes the disease, which is aggravated by the impure water, &c., on floor of spinning room. *Xeroderma* was principally met with in children being congenital. Small doses of antim. tart., and locally, cod liver oil or glycerole of starch, improved their condition. The case of *Cutaneous Horn* occurred in a middle-aged female servant. It was of some six or seven years' growth, and commenced like a common wart. The seat of the affection was left malar prominence, and its length about a quarter of an inch. *Elephantiasis Arabum*.—One case, thirty-three years in duration; both legs affected, and right enormously swollen; hard and brawny; covered by the peculiar scaly skin of elephantiasis; patient formerly a house-painter; an extensive ulcer complicated the disease. The other cases were women. Pressure with a tourniquet over femoral artery, when lower limb is attacked, should be tried before proceeding to tie that artery for cure of disease. The case of *Tubercular Leprosy*, contracted in India, had been round the principal English hospitals, and tried various plans of treatment. Anæsthesia was well marked over

calves of legs and right fore-arm and hand; countenance frowning; alæ of nose ulcerated, as also fingers; could allow his arm to be cut or burnt, the anæsthesia was so complete; appetite good, as also memory. I tried him with carbolic acid internally and locally, as lately recommended for leprosy; it made the anæsthesia worse. He had, just before coming under my care, been taking hydrocotyle asiatica, but without any benefit. *Lupus Erythematosus*, or *Seborrhœa congestiva* of Hebra, was met with in four instances. It is a very obstinate disease to treat. Frictions with juniper tar soap, and the application of a weak iodide of sulphur ointment were used. For ordinary lupus, nitrate of silver points, potassa, fusa, and the solution of the acid nitrate mercury, and in some cases painting with a hot solution of liquor plumbi, are those remedies in general use at our hospital. Of course we do not use them indiscriminately, but select suitable cases for using the different substances; whilst in a few cases the local means were assisted by the use of Neligan's solution of arsenic, iodine, and iodide of potassium. Epithelioma was treated, in a few instances, as well as Rodent ulcer, with a saturated solution of chlorate of potass, a little opium being added to prevent pain. Operative interference had to be used in several cases. Some of the cases of syphiloderma were complicated by ulcerated throats, for which sulphurous acid spray was used, with one of Dewar's spray producers, and which had the desired effect in all cases.

Such are the brief and scanty notes I have to offer upon the cases treated at our hospital.

ART. IX.—*Observations on the Musculus Venosus, and on its use in Tetanus.* By FRANCIS CRUMPE, M.D.; late Surgeon to County Kerry Infirmary and to the County Gaol, and ex-Surgeon of the Kerry Militia.

THE musculus esculentus abounds on some parts of the sea-coast of this county. At certain periods of the year this fish is in season; they are boiled in the shell, and then detached from it, and brought in for sale in large basketsful to the town, where they are eagerly bought up by the poorer classes of people, and make a cheap and wholesome meal, mixed with a little butter, lard, or dripping.

But there is found here also a mussel of a poisonous nature, and a description of its action and effects on the human body may be instructive. A canal leads from the sea to this town—Tralee—a distance of nearly two miles; it terminates in a dock; there is no river or natural current communicating with or running through the dock. When the tide is full in vessels of large burden float on this canal, being dragged along by horse power to the dock. When the tide ebbs the water in the dock would at once empty itself into the receding tidal waters, were it not retained by the closed flood-gates, which keep the water confined, and consequently the ships in the dock floating, for discharging or receiving their cargo. At some periods, very remote and uncertain, this canal and dock are emptied, the water being allowed to escape; this is done in order to clear out any accumulation of sand or mud, or to procure some article belonging to the ship which may have fallen overboard. On the dock being emptied, it is at once resorted to by children, who, in some small pools of water, catch small fish, which they carry home and eat. I never heard or knew of any of the children or other persons who partake of these fish being seized with any illness; these fish being retained in the still water of the dock, as if in a large aquarium. But there is here also found a mussel which is quickly poisonous. The shell is of the same shape as the *musculus edibilis*, but many times larger. This increase of size may proceed from this mussel being of older formation than the edible variety. It is a question how these were brought from the sea to the dock, a distance of nearly two miles. They have no locomotion in themselves, nor are they moved by a strong current of water coming from the sea, the water from the sea gradually flowing in with no perceptible impulse. It would appear that these mussels floated in the form of spat, and their movement ceasing at the dock, they gradually, in the still water, subside to the bottom, when they take on a calcarious covering, which gradually increases in size as the fish increases, and resembles in some degree the formation and development of the oyster.

On opening the edible mussel it is of a comparatively pale colour, with a thin fimbriated membranous edge, which may answer in its organization the gills in fishes, and which is called by the country people the beard, as it is observed at the edge of the oyster. On opening the poisonous bivalve the fish is much larger, and rather of a deep orange colour.

The following cases occurred here some few years ago. I give the particulars from the newspaper of the day, on a coroner's inquest being held on the deceased children, and the medical evidence. Biddy Rahilly, aged 7, John Riordan, aged 4, and John Treacy, aged 5, eat some of these mussels when boiled, late towards night. After going to bed and sleeping for about an hour awoke complaining of sickness, collapse, and want of muscular power. The doctor was sent for at about three o'clock a.m. One child was dead for an hour before he arrived; another child in an hour after his arrival; and the other child died in a few minutes after. On a *post-mortem* examination the stomach and bowels were enormously distended with gas; there was nothing in the stomach or bowels but a little mucus; these were of a red colour. The question is, what did the redness proceed from? There was no symptom of inflammation during life—no pain. Collapse, sinking, prostration, and loss of muscular power alone were present. These mussels, though only a few, were eaten—were quickly digested—carried into the intestinal canal, and quickly absorbed into the system. Giving an emetic now could be of no use, only occasion a quicker collapse and sinking, for there was nothing to discharge, and on the same principle the stomach pump could be of no service; and even if mussels were in the stomach, these having got in mastication some two or three turns in the mouth, and been swallowed as an oyster would be—could never be conveyed by or enter the tube of the stomach pump. So that the treatment should consist—that is, if there was any time for treatment—in trying to remove the effects produced by the poison on the system—such as powerful stimulants and restoratives might effect.

The following case came under my own observation:—

Ellen Quirk, aged nine, eat a few of these mussels unboiled, as one would an oyster. This happened half a mile from her residence. She was immediately taken so ill that she could not move of herself. She was brought home by two people, who each caught her by the hand, and placing an arm under each axilla, helped her home. I saw her trying to walk—throwing her feet in awkward positions; if it was not for the support she had, she would have fallen head-foremost. Her face was suffused, her eyes wide open, rather blood-shot; her chin rested on the sternum. On gently raising up the head and giving it a gentle inclination, it fell backwards, and would stay so, if not gently brought forwards; on

giving it a lateral inclination it fell to either shoulder. Her pulse was not accelerated; she could not speak; there was froth in her mouth, which showed she could not swallow her saliva. She was placed in bed, cold applications to the head, and leeches; head kept high. Next day she was relieved from these symptoms, and soon got up quite well.

The dock at this time being emptied of water, I had a parcel of these mussels procured for me. I had them opened, and I presented them one by one to two vigorous barn-door fowl, young cocks, having kept them for three days previously confined without food, till they were nearly starved, and being let loose in a well-enclosed spot of ground, where no particle of food could be got for them. The fowl were sprightly and active, running here and there to pick up a morsel. I must allow fish is not the natural diet or food for gallinaceous birds. Yet hunger will overcome all antipathy. I now threw a mussel to each bird, they ran at it with avidity, and quickly gobbled it down. I now threw them a second one—one to each—this they also swallowed. The quantity taken could never have satisfied their hunger. I now gave a third mussel to each, this the bird caught and held firmly in its bill, as a bird would a worm, squeezing its bill strongly on the mussel, which it held so for a minute, and shaking its head, it allowed the mussel to drop from its bill; it would not touch it now. Both birds stood stationary, with their heads erect, opposite each other, as if they were conscious there was something swallowed which produced deleterious effects on them. I left them so, and in an hour, on returning to see them, I found them lying down, both paralysed, in the spot where I left them. I had them taken up; they could not move legs or wings. They did not lose their senses, as I saw they could see and hear. I had them attended to, and they gradually recovered. One lived to be a fine vigorous cock. The other bird was languishing in its gait and drooping in its plumage; it lived for six weeks, gradually becoming weaker, and died.

I now tried what effect might be further produced—I got two strong young ducks; I kept them confined in a plot of ground where a particle of food was not to be had; they were thus without food for three days. Observing their beaks one morning dirty and black, I watched what they were about. I found them delving their beaks into the earth, turning it up (as one would with a spade)—searching for worms, grubs, or any of the insect tribe to stave away hunger. Ducks are well known to be dirty feeders, devouring the

small intestines of small animals, paddling in sinks and gutters, swallowing every garbage. If you throw to a duck in a pond a live frog or mouse, it at first sinks from its own gravity, then quickly rises; hardly has its head appeared on the surface when it is seized and gobbled down. I gave the mussels to these two fowl—they ran at them with avidity; but when they were on the point of seizing them with their beaks they turned tail—nothing could induce them to swallow even one. I now placed the mussels in a dish of water; when they saw the water they quickly filled themselves with it, but would not touch one of the mussels. It showed what extraordinary instinct exists in the animal creation whether from smell or vision.

Cats are proverbially fond of fish. I had them placed before a hungry cat. The instant it put its head down to them the cat turned tail and left them there. It happened at this time, while I was in possession of these mussels, that I resolved to try their paralysing effect on a patient affected with that most spasmodical and powerful, and too often fatal disease, tetanus. This case is taken from the County Infirmary journal:—

Jane Cantillon, aged fifty, presented herself at the County of Kerry Infirmary. I saw that she walked with a cramped gait, her countenance had the strongly-marked tetanic features; her jaws were firmly locked, and had been so for the preceding day; her neck was quite stiff. She told me she fell a few days previously on the edge of an iron pot and was wounded on the leg. I saw a transverse wound, extending over the whole breadth of the patella; the wound was not a suppurating healthy wound. She was at once taken in and confined to bed. Her whole body now became stiff and cramped; no power to move her legs or thighs; a little movement in her hands. The pain in the scrobiculus cordis and spasmodic jerkings were not so severe as I have seen in younger subjects affected with the same disease; that might originate from her being a large and weighty woman. I have met some cases of trismus without tetanus attending it, and these cases recovered. But I never saw tetanus unaccompanied with trismus. The treatment of such cases, both local and general, are numerous, yet hardly any treatment is employed in which an odd case of recovery is not found; but these are the exception—a fatal issue being generally the result. I have met some cases, mostly originating after burns, when the eschar was detached and surface granulating and healthy,

and no good result happened in any one of them from wine and opiate treatment. This patient, Jane Cantillon, had a fine set of teeth; with difficulty and manœuvring I contrived to slip the handle of an iron spoon on the flat between her molar teeth. Grasping the body of the spoon in my hand, and turning it half on its axis, I so far wrenched her jaws asunder that I could introduce my forefinger into her mouth. I gradually now introduced into her mouth one of these unboiled mussels, and with my forefinger pushed it down into the pharynx, so that she was compelled to swallow it. In a few minutes after, by a similar mode of proceeding, I made her swallow another, and in an hour's time similarly her third mussel. I now left her, but previous to giving her the mussels I made a transverse incision, two inches above the patella down to the fascia, embracing near a fifth part of the circumference of that part of the limb, but I do not ascribe to it any effect in relieving her symptoms. In three hours after, on paying the patient a visit, I observed her features quite altered. She had a placid, natural countenance, lost the deep frown and contraction of facial muscles, could open her jaws to the fullest extent, and also move her neck freely. She had more use of her hands, but her lower extremities remained rigidly stiff. The wound was simply dressed, the excretions attended to, her limbs chafed with anodyne liniments, and she finally recovered—though most slowly. I met this woman lately. She showed me the cicatrix where the incision was made, and told me she was walking on crutches for three months before she finally recovered.

This, certainly, is a solitary case, but it is not every day that a practitioner, either in town or country, meets cases of tetanus. Should these poisonous mussels be met on any other part or parts of the coast of Ireland in the neighbourhood of any dispensary, it would be interesting, if the medical gentleman should have a case of tetanus on his hands, if he would give a trial to these mussels, and try what effect they may have on his patient.

Could the poison of these mussels be concentrated as a remedial agent, one of the most powerful anti-spasmodic medicines would be procured, whose effect would be in some degree antagonistic to strychnine.

ART. X.—*A Contribution to the Diagnosis and Treatment of Aortic Aneurism.* By JAMES LITTLE, M.D. (Univ. Edin.), one of the Physicians to the Adelaide Hospital; Lecturer on Practice of Medicine in the Ledwich School; and Examiner in Practice of Medicine and in Clinical Medicine to the College of Physicians.

Two cases which have recently been under my care throw some light on the value of certain symptoms in the diagnosis, and of certain measures in the treatment of aortic aneurism.

CASE I., in addition, presents the following points of interest:—

(a) It is a case of abdominal aneurism in a woman.

(b) In it aneurism co-existed with cancerous disease in another part of the body.

On January 20, 1871, Mary Byrne, aged 49, came under my care in the Adelaide Hospital.^a

She had had four children; menstruation had ceased ten years ago. She had always had very hard work as a thorough servant, and was known to be of temperate habits.

She had excellent health till three months ago, when she felt at first weakness and afterwards pain across the loins, the pain was worse in the right loin, was slight during the day, became intense on lying down, and was lessened by lying on her face.

Soon after she began to suffer from frequent feelings of faintness which ended in sweating.

Two months ago she noticed a beating at the pit of the stomach, and felt an obstruction in swallowing; this obstruction came on rather abruptly, was referred by her to the pit of the stomach, and was accompanied by pain; this pain was so severe after swallowing solid food that she often sought to relieve herself by producing vomiting. She also had wandering pains through the abdomen, and her appetite had failed.

She stated that her mother had died at the age of 45 with precisely similar symptoms.

A strong pulsation could be felt in the epigastrium, and a faint murmur could be heard in the same region to the left of the mesian line.

She remained in the hospital till the beginning of April, and for the first two months was kept in bed. During this time the

^a This account is taken from the notes kept (Hospital Cases, Vol. vi., No. 78), by Drs. Elliott and C. B. Ball.

symptoms were—loathing of food, consciousness of obstruction to its passage, greater when she left the hospital than when she entered it, but varying much from day to day, pain after the food was swallowed, and occasional regurgitation of it. She was unable to get down anything more consistent than rennetted milk, thin arrow-root, or whipped egg; port wine, even diluted, caused a feeling of burning and palpitation, but claret was greatly relished.

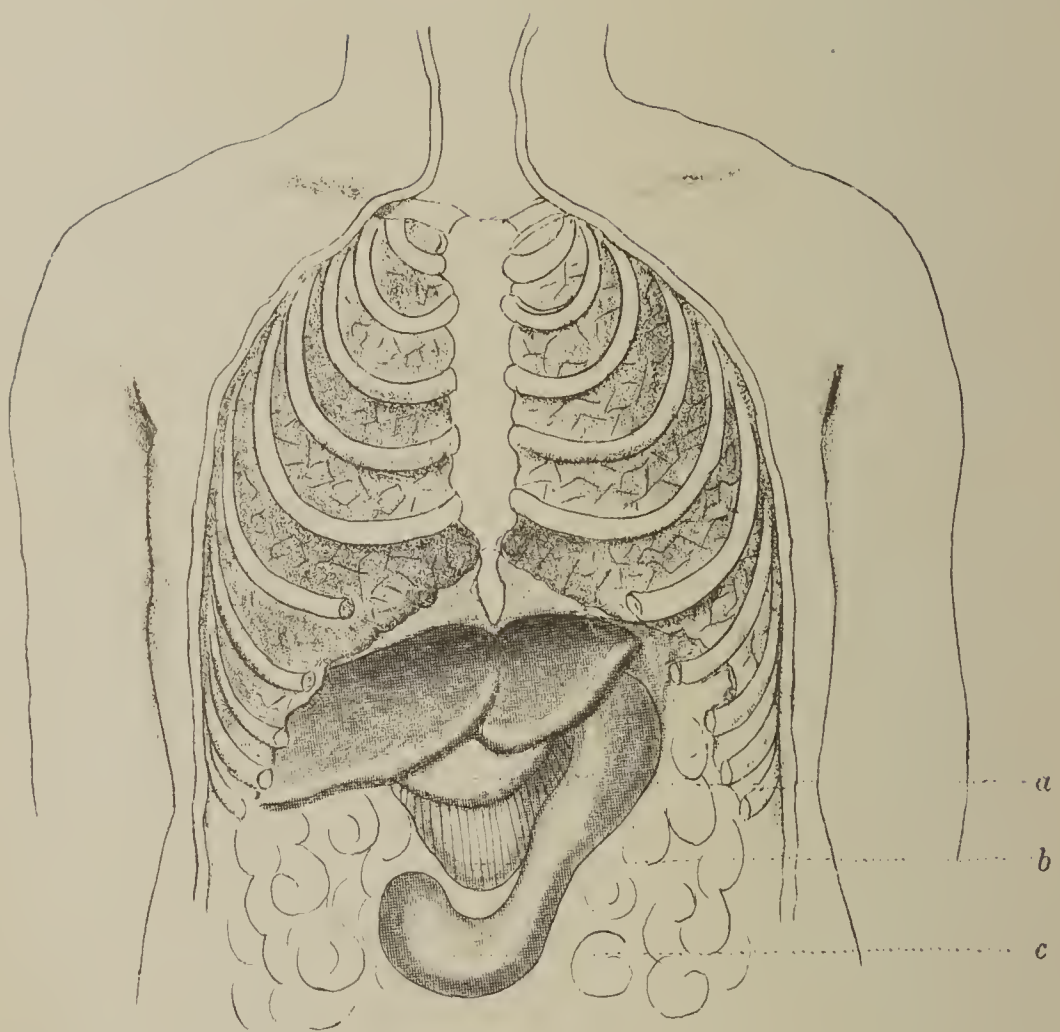
Faint feelings and short fits of sweating, especially when she lay on her back. Painful throbbing in the epigastrium, also worse in the recumbent posture.

Sometimes there was little or no pain in the loin, sometimes it was severe; at one time she had severe pain (described by her as a sawing pain) in the right infra-scapular region, and in the right side of the epigastrium; in the last situation there was tenderness on pressure. The heart's action was generally between eighty and ninety, and markedly irregular in rhythm.

At the time she left the hospital a hard resisting mass was felt in the epigastrium; it was elevated during each cardiac systole, but exhibited no distensile pulsation, on the contrary it was a question with me whether the movement was anything more than an impulse directly communicated to the mass by the heart's action. There was no murmur. On several occasions two leeches were applied to the epigastrium, and on several occasions to the seat of pain in the loin; they invariably afforded marked relief, which continued from twelve to thirty-six hours; the pain was also lessened by codeia in doses of two-thirds of a grain every sixth hour. The feeling of throbbing was rendered less distressing by prussic acid, and by ice swallowed and applied to the epigastric region. All her sufferings, however, were relieved by the hypodermic injection of morphia and atropia much more effectually than by any other means, the injection was at first given only at bed-time, and after it she slept all night, and remained free from pain and palpitation during the forenoon of the following day. Iodide of potassium was given but only in ten grain doses thrice daily for a fortnight.

Two months after she left the hospital she returned without my knowledge; she did not seek admission as a patient, but applied to the matron for a situation, and was taken on the staff as a ward-maid; at this time she suffered severely from throbbing in the epigastrium, and from pain shooting from the epigastrium through to the spine; when in much pain she was in the habit of applying to one of the resident pupils for a hypodermic injection, but it was

Fig. 1.



a—Aneurism.
b—Pancreas.
c—Stomach.

found necessary to increase the dose considerably, so that by the end of the year each injection contained one grain of morphia; at this time she could swallow better. In the end of December I examined her and found a murmur synchronous with the diastole of the aorta audible over the entire epigastrium, in the recumbent, but not in the erect posture.

In January, 1872, without any exposure to cold, she had an attack of low broncho-pneumonia, of which she nearly died; after it was over she refused to remain as a patient, preferring to return to work; she continued, however, to apply once or twice every day for a hypodermic injection.

In the end of February she drew my attention to a sore which had appeared on the interior of her right cheek. I found the sub-maxillary glands were enlarged, hard, and fixed; and, believing the sore to be epithelial cancer, I asked my surgical colleagues, Dr. Barton and Mr. Richardson, to examine it. They pronounced it to be malignant, but considered any operative interference would be useless.

She was again urged to confine herself to bed, but she obstinately refused, saying she would go mad if kept quiet, and she persisted in discharging her duties, which involved considerable physical exertion, up to the beginning of June; then, however, she consented to remain in bed. At this time she occasionally suffered intense pain in the epigastrium, and efforts to swallow so aggravated her suffering that for periods of forty-eight hours and more she sometimes took nothing but ice. There was marked intolerance of pressure in the epigastrium, and rigidity of the recti, but no appreciable pulsation.

By the beginning of July the ulcer had destroyed a great part of the cheek, and there was frequent oozing of blood from it, but measures adopted under the direction of Mr. Richardson kept this in check up to the 1st of August, when a considerable bleeding occurred, and she died.

During the last few weeks of life poultices smeared with extract of belladonna and veratria ointment, and the administration of chloroform, suspended in a large quantity of thick mucilage, lessened the pain and difficulty of swallowing, and the administration of beef-tea enemata gave her great relief from the distressing feeling of sinking occasioned by want of food; sleep, however, and thorough relief could only be obtained by the hypodermic administration of morphia; twice daily five charges of a drachm syringe were injected, and as the solution used contained twenty grains to the

ounce, she had night and morning twelve and a-half grains of acetate of morphia. The repeated punctures had irritated the skin of the arms so much that several small abscesses formed, and it was found necessary to throw the solution into the legs.

On opening the thorax we found the heart extremely small,^a and the aortic arch abnormally capacious and slightly atheromatous in patches. The vena azygos was seen to be unusually distended.

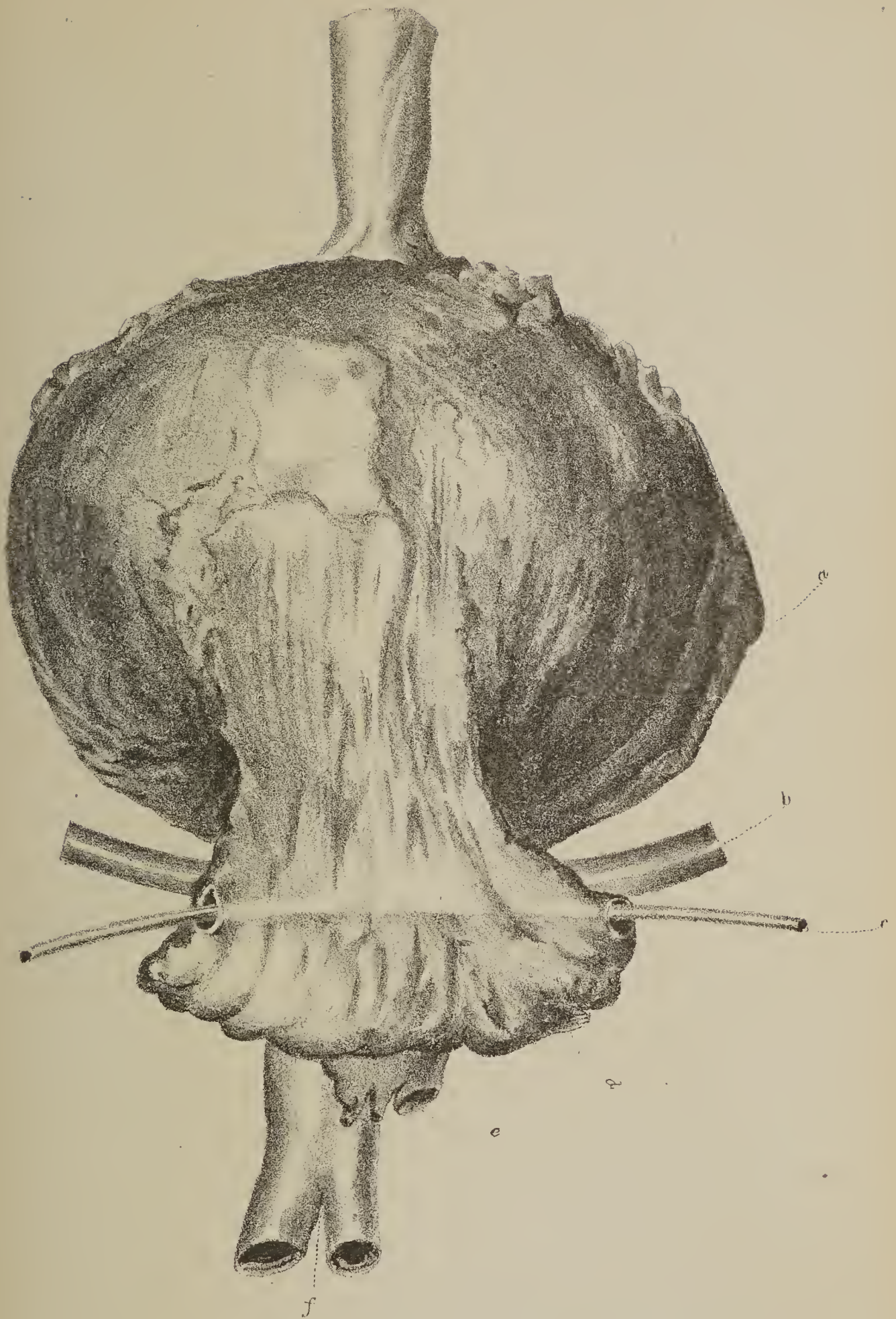
On reflecting the abdominal parietes the appearances roughly represented in Fig. 1 were seen. A tumour occupied the epigastrium; it was freely movable, it was covered almost entirely by the left lobe of the liver, which was thinner than usual; round its left side swept the lesser curvature of the stomach, and below it lay the pancreas; on raising these parts the diaphragm was found stretched across the posterior aspect of the tumour on the left side in such a way that the sides of the œsophageal opening were closely pressed together, while over its posterior aspect to the right was stretched the ascending cava, and across the lower portion passed the left renal vein.

When removed from the body the tumour was seen to be the size of a small cocoa-nut; it sprang from the aorta, just above the origins of the renal arteries. The aorta itself was not abnormally adherent to the spine, nor was there the slightest erosion of the vertebræ. On slitting up the back of the vessel the opening of the sac was found in its anterior aspect; it was three inches long, the sac itself was filled with a dense laminated mass of fibrin, and a small, less firm coagulum lay within the vessel over the opening of the sac. The celiac axis and superior mesenteric artery sprang from the sac. The aorta, both above and below the aneurism, was atheromatous. In Fig. 2 are shown the parts about two-thirds their actual size.

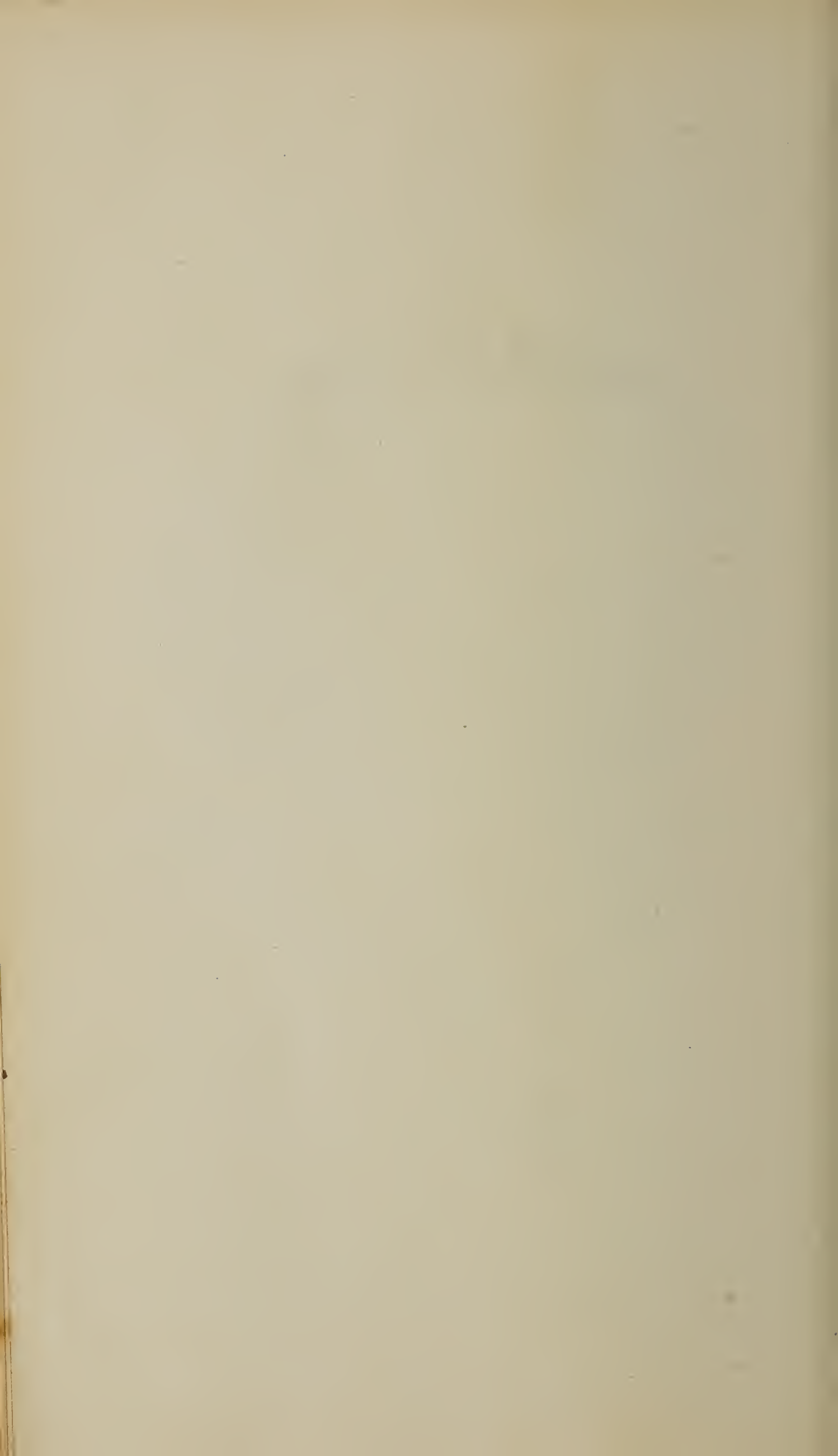
CASE II.—On May 8, 1872, I was asked to see Mr. —, aged 39, a master builder. Eighteen months before he had got thoroughly wet; in this state he entered a railway carriage, and having spread his damp rug on the bottom of the carriage he lay down on it and slept during a journey of some hours. For more than a month after this he was confined to bed with severe pain in the back; the intensity of the pain then diminished, but since he has from time to time had

^a This condition of the heart has been noticed in other cases of abdominal aneurism. "I have even seen," says Dr. Stokes in his *Treatise on Diseases of the Heart and Aorta*, "in a case of vast abdominal aneurism, in which the sufferings of the patient from pain, and the violence of the pulsations were extreme, the heart in a state of atrophy and diminished capacity, very similar to that in cases of protracted phthisis."

Fig. 2.



- a*—Left supra-renal capsule.
- b*—Catheter passing through left renal vein.
- c*—Catheter passing through splenic vein.
- d*—Pancreas.
- e*—Superior mesenteric artery.
- f*—Bifurcation of abdominal aorta.



pain in the same region; at intervals he has been quite free from it for two or three days, particularly so after bathing in the open sea last summer. The intensity of the suffering also has varied much; sometimes he is able to go about his business, sometimes he fears to move. He thought the pain was worse in damp weather. The *intense* pain was confined to one spot in the back, corresponding, I think, to the last dorsal vertebra; it was not increased by striking over the spinous process, and was lessened by steady pressure, and somewhat by lying on his face; besides this he had painful feelings (as if something was tearing or pulling his flesh) about the false ribs and adjacent abdominal wall, especially on the left side.

No tumour was to be felt in the abdomen, nor any murmur heard either in front or behind. The pulse was 80; the heart's impulse was abnormally forcible, and there was a loud rough systolic murmur at mid-sternum, and over the second right costal cartilage. He had drank freely for years.

I recommended him to apply two leeches on either side of the last dorsal vertebra.

On May 11, I saw him again, and found that for twenty-four hours after the leeches had been applied he had been appreciably easier. I came to the conclusion that the case was one of aortic aneurism, the grounds of my diagnosis being—

(a) The presence of pain intense, but limited to a single vertebra, and not aggravated by tapping.

(b) The existence of pains of less intensity, but extending over a large portion of the thoracic and abdominal walls.

(c) The stethoscopic evidence of degeneration of the arterial coat at the mouth of the aorta, or in its arch.

(d) The mitigation of the pain when he lay on his face.

(e) The occurrence of periods of comparative ease.

(f) The relief from bleeding.

I stated my opinion, advised perfect rest, a light diet, great reduction in the quantity of stimulants, and the use of iodide of potassium with tincture of digitalis.

On May 30th I was again asked to see Mr. ——. I found he had made little difference in his mode of living, but had taken the medicine prescribed. His appetite had failed, his pulse had risen to 120, and his nights had become sleepless.

A soft murmur was now audible to the left of the spine on a level with the three last dorsal vertebræ.

As I was convinced he would not make any serious change in

his habits, and as I felt that the iodide of potassium, under these circumstances, would do no good, I advised him to give it up, to apply two leeches to either side of the spine, and two days afterwards a small blister. I gave him a hypodermic injection,^a and recommended him to get some one who could do this for him every night.

A fortnight after this I was again asked to see him. I found the hypodermic injection which I administered had secured him a good night's rest, but the remedy had not subsequently been used; he had found the pain so much lessened, both by the leeching and the blister, that he had applied them a second time. He was, however, suffering greatly from a sensation of want of air, with the feeling that if he drew a long breath he would tear something in the left side of his chest. On raising him I found a strongly pulsating but murmurless tumour, of three inches diameter, below and somewhat external to the inferior angle of the left scapula, as shown in Fig. 3. I advised that two leeches should be applied near but not upon the tumour, and that a bladder containing ice should be laid over it occasionally.

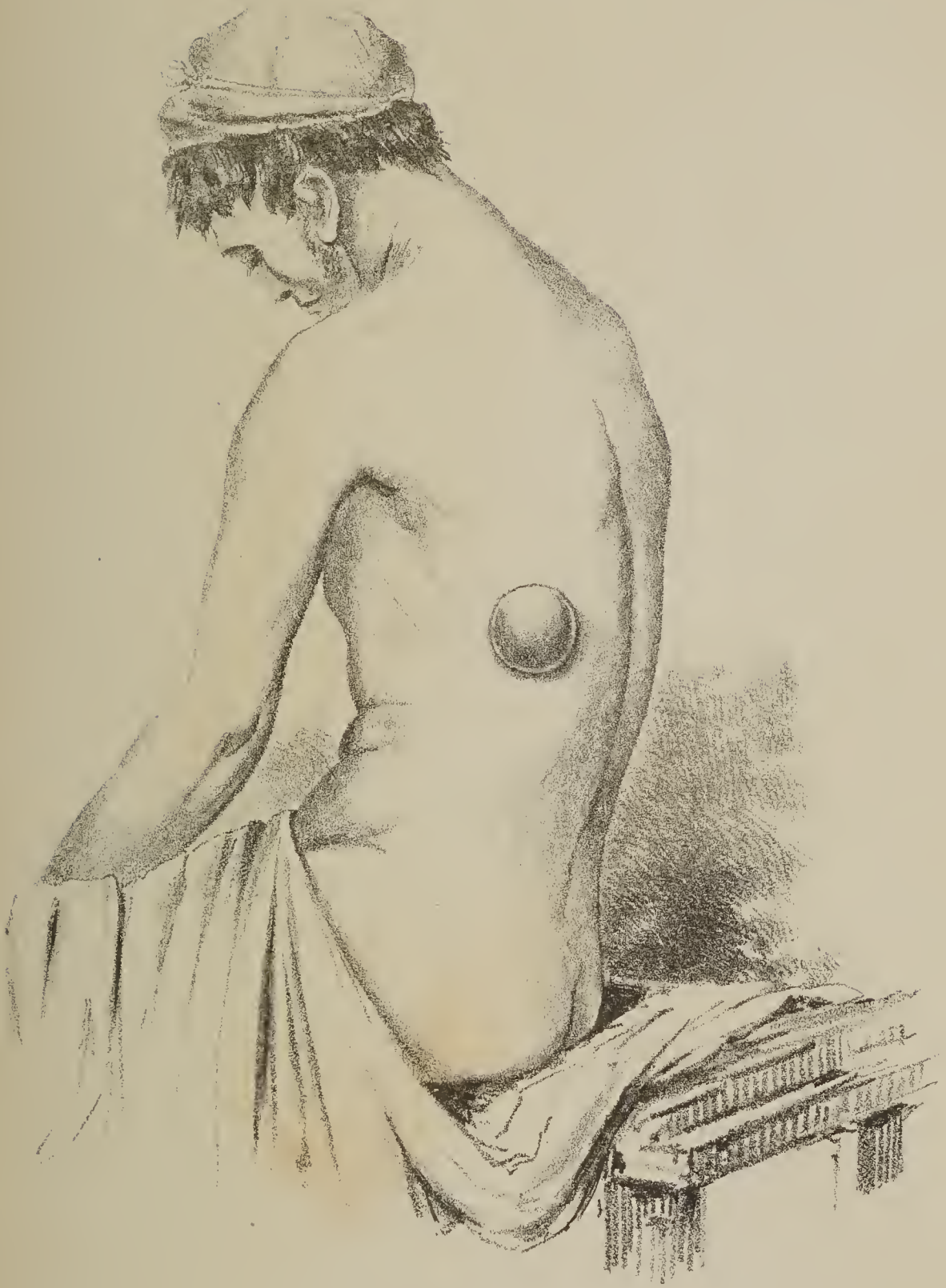
I subsequently learned that the tumour increased considerably in size, but did not burst, and that he died rather suddenly on July 8th.

In the absence of examination after death it is impossible to say from what portion of the descending aorta the aneurism sprang.

In the first of these cases the diagnosis lay between cancer and aneurism. Two circumstances (the sex and the existence of malignant disease elsewhere) were immensely against the probability of aneurism; other phenomena were in favour of it. A similar question every now and then presents itself at the bedside. We have symptoms which are plainly produced by pressure on deeply seated structures within the thorax or abdomen, and the structures are those on which an aneurism might press, yet we are unable to detect either pulsation or murmur; in such cases I believe some assistance in the diagnosis may be derived from a consideration of the following circumstances:—

^a For the past four years the solution which I have always kept for hypodermic use, and which I have found to suit admirably for relieving pain, cardiac distress, and sleeplessness, has consisted of acetate of morphia eight grains, liquor atropiæ sulphatis P.B., forty-eight minims, distilled water to four drachms; five minims of this contain acetate of morphia gr. $\frac{1}{6}$, sulphate of atropia gr. $\frac{1}{120}$, which is a proper first dose for an adult. If long kept a fungoid growth becomes developed in it, and therefore I am now in the habit of adding two or three minims of glycerine, an addition which Dr. Evans, jun., suggested to me, and which delays this change. The sulphate of morphia is now, I know, preferred for hypodermic solutions, and is probably more suitable than the acetate.

Fig. 3.



JOHN FALCONER, LITHO., DUBLIN.

1. There are from time to time marked changes in the intensity of the symptoms (a fact long since noticed by Stokes and Walshe).
2. The patient is usually anxious, "fretted," and irritable.
3. Blood letting, small blisters, and the application of ice usually afford marked but temporary relief.^a
4. The general health does not fail until pain has been long present (Dr. Stokes).
5. Change of posture often gives considerable relief.
6. Intense neuralgic pain a prominent symptom.
7. Enlargement of superficial veins rare.
8. Hereditary tendency to aneurism may be discovered.
9. We find (less frequently in abdominal than in thoracic aneurism) evidence of the degeneration of the walls of other arteries.
10. In abdominal aneurism ascites does not occur (Dr. Stokes).

^a At least such has been the result of my own observation in several cases of aneurism and of cancer. I find, however, with regard to blood-letting, so high an authority as Dr. J. Risdon Bennett thinks I attach too great importance to this difference between aneurism and cancer. In the Lumleian Lectures on Intra-thoracic Growths, recently delivered by him, he says:—

"Dr. Little, in the *Dublin Journal*, has described a very interesting case, forcibly illustrating the difficulty of diagnosis between aneurism and intra-thoracic cancer, the only sign revealed by auscultation, when the patient was first examined, being diminished respiratory murmur in the left lung. Hæmoptysis had occurred a year previously, and the principal symptoms were dysphagia, aphonia, a constant tickling cough attended by sanguineous mucous expectoration, wandering pains about the chest, and especially a pain in the left side between the spine and the scapula. Subsequently there was dulness in the front of the chest spreading to the *left* of the sternum, and not to the right as is usually the case with an aortic aneurism making its way to the front. But there was neither impulse nor arterial sound over the dull region. Doubts as to the real nature of the case subsequently arose, especially from the fact of non-relief from the application of leeches, on which Dr. Little is disposed to lay great stress. Doubtless in most cases of aneurism making their way to the front, local depletions do very generally give more or less temporary relief; but I have, in several instances, found, that much relief has been obtained by the same means in intra-thoracic cancer."

1. The progress of the disease is uninterrupted.
2. The patient is usually melancholy or apathetic.
3. Ice affords no relief, blood-letting and blisters afford very little.^a
4. The patient loses colour, flesh, and strength early.
5. Change of posture gives little or no relief.
6. Pain of intense neuralgic character is neither an early nor a prominent symptom.
7. Enlargement of superficial veins common.
8. Hereditary tendency to cancer may be discovered.
9. External cancer may be found.
10. Ascites moderate in amount, but persistent, is very usual in abdominal cancer (Dr. Stokes).

Finally, habits of intemperance and military occupation lend probability to the presumption of aneurism; whereas the patient's age being under twenty-five, and the female sex (at least in cases of abdominal tumour^a), are strongly against aneurism.

ART. XI.—*Notes on Colotomy.* By DR. LAFFAN, Surgeon to the Union Hospital, Cashel.

COLOTOMY has of late years made considerable advances in surgical favour. The labours and writings of Hawkins, Curling, Bryant, Erichsen, Hulke, and others, have given to it a recognized place among the successes of surgery. In the third edition of his work on "*Diseases of the Rectum*," Curling published seven cases, all of which might be well claimed as successful; since that time he has added ten others to the list, many of these also being successful. Mr. Bryant, in an article in the *Medical Times* of June 15th, has published sixteen cases, for all of which he claims success. In the same article he quotes Mr. Allingham as having operated in ten instances, nine at least of which were attended with fortunate results. Mr. Curling expresses his conviction that the deaths in his unsuccessful cases were chiefly attributable to the disease for which the operation was undertaken, and not to that proceeding itself. Mr. Erichsen, as the result of his review of all the recorded cases, gives expression to a similar opinion, and adds, that we should therefore have less hesitation in performing it in a particular instance, than we should if it were an operation attended with any serious risks to the patient's life. As originally proposed by Callissen, and subsequently modified and revived by Amussat, colotomy, as our readers are aware, was designed only for the relief of complete obstruction, and consequently for the mere prolongation of life. Mr. Curling has had the merit of giving to it a wider scope; he was the first who proposed to employ it in cases where no obstruction existed, in order to mitigate intolerable suffering, and thus render tolerable the life that could not be even prolonged. Mr. Pollock, in Holmes' "*System*," also speaks of the operation as a most valuable measure, not merely for the prolongation of life, but also for the relief of suffering. To Mr. Bryant chiefly belongs the credit of still further extending colotomy. He advocates it not only as useful for prolonging life and diminishing pain, but also as

^a See an exhaustive essay on this subject by Dr. Arthur Wynne Foot, in this Journal for February, 1871.

a curative agent in rectal ulceration, recto-enteric fistula, and even in cancer, of which last-named affection a case is given by him as having been cured by resort to it. The success of a single operation for the relief of obstruction is sufficient to justify, nay to demand, recourse to it in all cases of obstruction. It is otherwise, however, when we come to deal with cases where the relief of pain and the cure of disease is sought for. Here, in order to fix some standard by which we may judge where an operation would be justifiable, and where not, we have need of such a large number of recorded operations as shall enable us to form an exact measure of the risk which it entails; nay even despite the eminent opinions to the contrary, it as yet admits of question how far the operation be at all justifiable in the two latter classes of cases. The number of cases as yet published can hardly be considered as sufficiently large to supply this desideratum, and to indicate the precise conditions under which the operation would be justifiable. It is for the purpose of contributing even a unit to the number that this case is published. One point arising out of it will, we think, be found to have a practical interest for subsequent operators. We wish, moreover, to indicate another field in which colotomy might be tried, with, probably, useful results.

M. K., aged twenty-five, bricklayer, unmarried, a young-looking but somewhat worn man, was admitted into the Union Infirmary of Cashel on the 25th of February last. He had enjoyed good health up to the age of sixteen years, when he began to pass, with occasional intermissions, some blood every time he went to stool. At this time and afterwards he lived freely, and smoked a good deal. Four or five years ago he began to suffer from prolapsus ani, and soon after this he got a soft chancre. The bleeding and prolapsus continued up to the time that he first noticed his present ailment. In April, 1871, he felt great pain when the bowels were being moved, and for some time after. He now noticed a long, hard "welt," partly within and partly without the anus, which commenced as a mere wart, and was attended with much pruritus. When the bowels were moved this became swollen and prolapsed. He was admitted at this time into a Dublin hospital, where his disease was diagnosed to be fissure of the anus, and the usual incision was made into the part for the supposed fissure. The pain continued as before, his appetite became bad, his strength diminished, and he left Dublin after nine weeks' stay. He then went home,

where he remained till December, when he became an inmate of a provincial hospital; here he remained for some weeks more. His symptoms were now aggravated by occasional pain and difficulty in making water; his sleep, which was from the first impaired, now became worse still, and he lost more and more flesh and strength. Soon after this he became an inmate of the Union Hospital under our care. On admission his pulse was 108; appetite fair; motions flattened; bowels never moved without medicine. He had pain of a pretty constant character in the rectum and about the nates. The entire anal aperture was seen encircled by a hard, ulcerated cancerous mass. The finger passed into the rectum met with a hard, smooth ring entirely surrounding the bowel, and about one inch in the vertical diameter. A hard lump was felt in front in connexion with the prostate; above this the bowel was smooth. The glands in both groins were hard and enlarged, and he stated that they had been so from the time that he had first felt the bowel sore. The other organs were healthy. He continued in a state of great discomfort for some weeks, suffering pain, which was increased to an agonizing extent whenever the bowels were moved, and losing strength and appetite daily. It was now determined to perform colotomy. We proposed by it to effect two objects—first, to render life more tolerable; and second, to prolong it. The first it was thought would be effected by doing away with the pain, consisting in the passage of the irritating fæces over the ulcerated cancerous mass. This assumed the major part of the pain to be derived from this fæcal irritation, and into this assumption we were led by the results of previously recorded operations. The second object we hoped to achieve partly by thus diminishing the bodily distress, with its consequent wear and tear; and partly by getting rid of the provocative to the still further spread of ulceration which this fæcal contact supplied. The right colon was selected for operation. This was chosen because the statistics published by Mr. Hawkins appeared slightly in favour of section of the right colon, and because that gut was larger, and less likely to be entirely invested by peritoneum. On the 8th of May the patient was put under chloroform by my friend, Dr. Charles M'Carthy, now of Manchester, and an incision was made, two fingers' breadth above the right iliac crest, commencing at the outer border of the erector spinæ muscles, and extending four inches outwards. The skin, cellular tissue, and muscular layers having been cut through, the subserous layer of the peritoneum

presented itself. This was cautiously scratched through, and another structure, resembling the superficial layer of the fascia transversalis in appearance, was brought into view. Here the difficulty which Mr. Curling states he felt—namely, to distinguish the fascia gliding over the bowel from the peritoneum, at once occurred to us. The position of this structure in the present case, lying, as it did, beneath, and not superficial to, the subserous layer, was entirely against its being the transversalis facia. A dissecting-room acquaintance with peritoneal structures of ten years' duration, tolerably familiarized us with their appearance, and yet we felt for the moment puzzled. The reflection before us bore no resemblance to the serous membrane. Its position, however, rendered it impossible that it could be aught else than a peritoneal process, altered, indeed, from the general appearance of the membrane, as we know the colic investments usually are. We had, in truth, to deal with the meso-colon, unusually large, and of size sufficient to surround the entire gut, and thus to seriously complicate the operation. Search was now made for the interstice between the two layers of the meso-colon, but this could not be found. It was now divided on a director, and the gut came at once into view. This was next seized, without difficulty, with a tenaculum, and brought to the surface. An incision one inch in length was now made into it, and the angles of the wound were attached by four silver sutures to the integument. There was little or no bleeding, and no vessel required ligature. A plug was inserted into the opening, and the patient removed to bed.

8th, evening.—Pulse 132; feels easy; complains of a little pain in the abdomen near the wound; shows an inclination to retract the thighs; ordered a grain of opium every third hour, and warm poultices to be frequently repeated over the abdomen.

9th.—Slept some, looks calm, and feels easy; very little pain; no abdominal tenderness; took his drinks; pulse 112.

10th.—Slept fairly; no signs of peritonitis; took his drinks; medicine and poultices continued.

11th.—Slept well; no unfavourable signs.

12th.—Going on favourably; an enema given; 8 motions, 5 by old and 3 by new passage; all abdominal pain gone.

13th.—Slept well; no pain, save a little in the wound; took his drinks; pulse down to 88.

15th.—Going on favourably; several motions; an orange kernel recently swallowed came away by the old passage.

17th.—All effects of operation have vanished, and he lay as well

as ever on the right side. From this to the 8th of June he went on pretty much as before. Two, and sometimes three motions occurred daily; but what was disappointing, and what we were entirely unprepared for was the fact, that some of these came through the old passage. The order of time of the occurrence of these motions through the two passages varied; sometimes the old had the precedence by some hours, and at other times the motion occurred through the new passage first. There were, in addition, occasional drainings at night, and when up, from the latter passage. The new anal opening occasioned no discomfort whatever. There was much pain, and this was always much increased by the motions from the old passage. His sleep was interfered with by the pain, which occasionally assumed a paroxysmal character.

Chloral-hydrate, Cannabis-indica, Hoffman's anodyne, aconite, conium, were successively tried in vain; none were found equal to opium. On the 8th of June the plug inserted into the new opening, by some accident slipped into the bowel, and was discharged after great agony per rectum. 8th June to 27th June—No noteworthy change. 27th June to 10th July—Condition of patient pretty much the same; but the pain less, owing to there having been no motion during this time through the old passage. A considerable drain of pus and slimy matter came from the surface of the sore.

10th July to August 13th.—Condition as before; but pain much worse. Motions again occurred regularly through both passages. Two or three of these every day. The glands in the groin have increased in size, and become very painful.

August 15th.—A prominent swelling in front of the anus burst and discharged its contents. From this date to the present time (September 25th) the patient continued in the same state. Motions occurred daily through the old as well as the new passage. The cancer continued to progress with no great rapidity, and so far as the pain is concerned it is exactly the same as it was before the operation. The general condition of the patient may be said to be little changed since the date of his first admission.

Of the operation in this case we cannot but confess that while it exposed the patient to some risk, it conferred on him no proportionate, or indeed any benefit. It cannot be cited, therefore, in support of the utility of colotomy for the relief of pain. It does, however, furnish an additional case in favour of its freedom from any great risk. The absence of peritonitis tends also to lend support to the views of Dr. Fuller and others, that the admission of

air into serous cavities is not attended with that great danger that we have been all accustomed to associate with it. The continued discharge through the natural outlet was largely responsible, but still not entirely, for the failure of the object of the operation. We are not aware that this mischance has as yet been described by any writer on colotomy. When too late to profit by it, we found in an unexpected quarter of Curling's work, namely, in his chapter on congenital diseases, a case reported in which left colotomy was performed for imperforate anus with recto urethral fistula. Here, despite of the colotomy, the fæces continued to pass into the part of the colon beyond the new opening, and thence into the urethra, thus defeating in part the objects of the operation. In the present case a similar mishap helped materially to defeat the principal object of the operation. It is worthy of careful note, as bearing on future operations, that during that period, viz., from the 27th June to 10th July, during which no motion occurred through the old passage, the pain felt by the patient, although considerably lessened, was not wholly or even in greatest part removed. This fact is not favourable to exposing a like patient (except in a case where life had become a burden) to the risk of a similar operation. The remedy for preventing such a mischance as the continued perviousness of the natural outlet is very simple.

During the performance of the operation the mucus lining of the anterior wall of the gut should be freshened and then sewed to its posterior wall. This would have the effect of cutting off all that portion of the colon beyond the new opening from all communication with the rest of the intestines.

This proceeding would, of course, not be applicable to cases where the new opening was designed to be merely temporary. One thing is established, namely, that wherever it is proposed to secure for a patient, in future, the relief from pain, such as it is, which an artificial anus can afford, the operator must take care, by some such procedure as we have suggested, to cut off all communication between the distal and proximal ends of the gut. It only remains for us to point out a class of cases, in some of which colotomy might be found of substantial utility. We allude to cases of sacculated, enlarged, and semi-paralysed colons, the result principally of chronic constipation of years standing, but, in part, produced also by the degenerative changes incident to old age, sedentary habits, and oftentimes by family predispositions. In such cases medicines, after having for years retained their efficacy, at a ruinous sacrifice

to the constitution, gradually lose all or nearly all power over the colon. Few hospital physicians there are to whom cases of this kind do not present themselves very often. We have seen the disease oftenest in females beyond fifty. The affection in an advanced stage is characterized by a peculiar pasty and pallid aspect of face, by a stercoraceous odour from the breath, by fixed pain and vomiting, and by extreme difficulty in moving the bowels. There is not always, even at the very close, complete arrest of defecation. Tympanitis of the upper portion of the intestinal tract is sometimes present towards the end. For such cases as these, medicine has long lost all its usual efficacy, and a time arrives when it loses all power whatever. For such persons the progress is one of unbroken descent. It appears to us that by dispensing altogether with the function of the colon, which is probably of only subordinate importance physiologically, and in cases of the kind mentioned, positively detrimental, life might, in the last resort, in many instances, be considerably lengthened. This functional curtailment right lumbar colotomy would effect. The selection of the right moment to do this would require the keenest discrimination. If done at too early a period the patient would be exposed to unwarrantable, because unnecessary risk; if done too late it would be useless.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Compendium of Irish Poor Law. By B. BANKS, Chief Clerk to the Commissioners. Dublin: Alexander Thom. Pp. 1131.

POOR LAW is a subject that is so little understood that it is generally considered to be dry and even repulsive in its nature. It is one of the most difficult and intricate of all the various considerations which engross the attention of our legislators, and Poor Law legislation is far from complete. It may be asked how it affects the medical profession, and at first sight its effects are not apparent; but to any one who has studied Poor Law it is well known, that it is vitally important to the medical profession, and that its history is intimately interwoven, not only with the history of the United Kingdom as a whole, but with that of our profession especially. As we have already mentioned, the subject is so little known it will be more convenient to our readers to make a few explanatory remarks on the history of the Poor Law before entering on the notice of the book now before us. Irish Poor Law is a mere offshoot from the English trunk, as is at once evident on turning to Mr. Banks' book, where the first Act alluded to is the Grand Jury Act of 1836. In commenting upon this book it will be of interest to touch lightly upon some of the landmarks of historical Poor Law—whence it arose—and what necessitated its origin. In all countries and in every state of society, destitution has existed, and ever will exist, and on the manner in which the destitute class is dealt with, and on the relative proportion which the destitute bear to the entire population the general condition of the whole will in no small degree depend. In England the Poor Law has been chiefly passed for the destitute class; and Sir Mathew Hale, in his "Plan for the Relief of the Poor," declares the relief of the poor to be "an act of great civil prudence and political

wisdom, for that poverty is in itself apt to emasculate the minds of men, or at least to make them tumultuous and unquiet. Where there are many poor the rich cannot long or safely continue such. Necessity renders men of phlegmatic and dull natures stupid and undisciplinable, and men of more active constitution rapacious and desperate." The natural impulse to aid the distressed which is implanted in all of us was probably sufficient, in the infancy of the state, to preserve it against the consequences of extreme necessity, in any of its members. When this influence failed, through the excess of demands, as society progressed, the influence of religion was invoked in furtherance of the same objects. Charity we find inculcated, therefore, as a religious observance, and even hospitality has come under the same category. Up to the year 1300 a state of slavery existed in England. In 1283 the Abbot of Dunstable sold a slave and his family for 13s. 4d. In 1333 a lord granted to a charity several messuages, together with the bodies of eight natives (villeins) dwelling there, with all their cattle and offspring; and in 1339 we meet with an instance of the gift of a neif (a female slave), with all her family and all that she possessed. Slavery prevailed during the Saxon period, and was continued and extended by the Normans; and it was not until after the two races were amalgamated that the people began to struggle for freedom.

The great majority of a people, whatever their social condition, must of necessity be devoted to manual labour of some kind; whilst in a state of slavery, however, their wants are provided for—they are clothed, fed, and maintained by their masters, to whom they belong, and who are entitled to the fruits of their labours. They are therefore without property, and are themselves the property of others, on whom devolves the charge of providing for their wants present and prospective. Serfdom and villeinage are only modifications of slavery, and as long as these prevailed there was no necessity for any special provision for the destitute. Macaulay, in his *History of England*, says:—"Early in the fourteenth century the amalgamation of the races was all but complete, and it was soon made manifest by signs not to be mistaken that a people inferior to none existing in the world had been formed by the mixture of three branches of the great Teutonic family with each other and with the aboriginal Britons."

This was the origin of what may now be emphatically designated as "the people," who soon asserted their right to freedom from villeinage. This change, however, from serfdom to freedom was

not unattended with a certain amount of evil. It led to a great increase of vagrancy, and many who had struggled for and asserted their own freedom now resorted to begging and vagabondism, and not unfrequently to violence. The unsettled character of the period fostered and gave licence to it, whilst the alms-giving, as practiced by the religious communities, gave it direct encouragement. Mendicancy and vagabondism thus increased with the spread of freedom, and must have at length become of very serious magnitude, they are so vividly described in the preambles to the various Acts passed at this period for their correction. Amongst the first enactments for the prevention of pauperism we find a restriction placed upon indiscriminate charity.

The "Statute of Labourers," the 23rd Edward III., 1349, enacts, "That none, upon pain of imprisonment, shall, under the colour of pity or alms, give anything to such which may labour." Even at this early period it appears to have been a recognized fact that indiscriminate charity led to professional pauperism.

The 12th Richard II., 1388, has been usually considered to be the statute from which the origin of the English Poor Law dates, and its chief characteristic is that it openly recognizes the distinction between "beggars able to labour and beggars impotent to serve," but no provision is made for the support of the latter. The villein or serf could not be considered to be *poor* in the strict sense of the word, because his master was at all times bound to provide for him, and it is therefore only when *free* that men can be so reduced so as to be poor—that is, to a state of actual want and destitution, for the relief of which they are not entitled to claim assistance in any quarter, and for such persons a special provision of some kind seems to be required in order to prevent their necessities rising to such a head as would drive them to the commission of crime, and compel them to prey upon the community. So long, then, as the great body of the people remained in bondage they were the absolute property of their masters, who were obliged to provide for their wants, as the condition by which they commanded their services.

No sooner, however, did this state of absolute dependence on their masters cease, than poverty and want, more or less intense, arising from sickness or other causes, occurred amongst them—want for which there was no legally appointed means of relief, and poverty from the pressure of which there was no immediate refuge. To meet this the Poor Law sprang up—and to perfect the Poor Law

has hitherto baffled the ingenuity of centuries of legislative wisdom. It has been for a long time suspected, and at last it is admitted, that sickness is one of the principal factors in pauperism. Turn to the Report of the Poor Law Commissioners, 1871. Of 183,135 persons admitted into the Poor-houses in Ireland, 97,665 were cases of sickness; there were besides 784,424 persons treated by the dispensary doctors. There were 13,513 cases of fever and other zymotic diseases treated in the workhouse fever hospital during the year, and 23,219 treated by the dispensary doctors. This will give some idea of the importance of sickness in pauper manufacture, and it is possible that the want of success in Poor Law legislation may, in a very considerable measure, have been due to the omission of the consideration of sickness as an element largely entering into its due consideration. The forcible repression—not the prevention—of pauperism is what has been ever aimed at, and it is curious, in following up the history of the Poor Law from the time of Richard the Second, how this permeated the system. Even in the time of Henry the Eighth, in 1530, an Act was passed by which “Scholars of the University of Oxford and Cambridge that go about begging, not being authorized under the seal of the University, &c., shall be punished and ordered in manner as is above rehearsed of strong beggars”—*i.e.*, “to be led to the next market town, and be there tied to the end of a cart naked, and be beaten with whips till his body be bloody.” Coercive measures without end and without avail have been launched at pauperism. Dr. Burn, in his History of the Poor Law, published in 1764, naively remarks that every method of coercion, short of scalping beggars, has been tried and failed. More than a century ago he counselled prevention, and, amongst other recommendations for reducing the burthen of the rates, remarked that education and proper attention in sickness would have more effect than all the gibbets and gaols in the kingdom. In 1536 the smaller abbeys were suppressed, and three years afterwards the dissolution of the larger abbeys was decreed. Up to this time the poor subsisted entirely upon private benevolence and the charity of well-disposed “Christians.” The monasteries were in particular their principal resource, and on their dissolution multitudes who were daily fed on the alms distributed at the doors of religious houses were scattered over the land. It has been calculated that about 50,000 persons lived in English monastic institutions, and by the dissolution of these establishments, and the abrogation of clerical celibacy,

150,000 of both sexes were added to the force by which the population was kept up. The Reformation then must be kept in view as forming another era in Poor Law history. Not only were the poor supported and fed by these institutions, but as the science of medicine was up to that time very much in the hands of the clergy, on the suppression of these monasteries they must have been deprived, to a great extent, of their medical skill. In 1513 surgeons and doctors were exempted from bearing arms or serving on juries, and at that time there were only thirteen in London. We find the College of Physicians established by letters patent granted on Sept. 23rd, 1518, and Dr. Linacre elected the first President. The first charter to the College of Surgeons was granted to the Royal College of Surgeons in 1540, and it was enacted that "no person using any shaving or barbery in London shall occupy any surgery, letting of blood, or other matter, excepting only the drawing of teeth." At this time also were founded Christ's, St. Thomas's, St. Bartholomew's, Bethlehem, and Bridewell. These "five Royal Hospitals," under "the pious care of the Lord Mayor of London," were all endowed with abbey lands. "A sentimental opinion prevails," says Mr. Froude, "that an increase of poverty and the consequent enactment of Poor Laws was the result of the suppression of the religious houses, and that adequate relief had been previously furnished by those establishments. It is necessary to say a few words for the removal of an opinion which is as near as possible the reverse of the truth. . . . Charity has ever been the especial virtue of Catholic States, and the aged and impotent were always held to be the legitimate objects of it. Men who had worked hard while they were able to work were treated like decayed soldiers—as the discharged pensioners of society—they were permitted to wear out their age (under restrictions) at the expense of others, and so readily did society acquiesce in this aspect of its obligations, that on the failure of the monasteries to do their duty it was still sufficient to leave such persons to voluntary liberality, and legislation had only to direct such liberality into its legitimate channel. The monasteries growing more and more careless, the number of paupers continued to multiply, and this method received successive expansions, till at length, when the Reformation was concluded, it terminated, after many changes of form, in the famous Acts of Elizabeth. The 12th of 22nd Henry VIII., and the 25th of the 27th, are so remarkable in their tone and so rich in their detail as

to furnish a complete exposition of English thought at that time upon the subject, while the second of these two Acts, and probably the first also, has a further interest for us as being the composition of Henry himself, and the most finished that he has left us." Mr. Hallam also, though viewing the matter from a different stand point, substantially agrees with the remarks of Mr. Froude on this subject.

To the Elizabethan era, then, we owe the origin of Poor Law legislation. It was still, however, remarkable for its coercive character, but in 1552 some attempt was made at the collection of dues and distribution of relief, and in 1572 it was provided that the aged and infirm poor should be provided for, and that abiding places should be assigned to them. As an instance of the enlightenment of that age, it should be generally known that several important sanitary Acts were passed in the reign of Queen Elizabeth. The 31st of Elizabeth prohibits more than one family or household inhabiting any one cottage, under a penalty on the owner and occupier of 10s. per month, and such cottage in the country must have four acres of land attached to it—the conversion of great houses into several tenements, whereby great infection of sickness and dearth of victuals and fuel have grown and ensued. This was evidently intended to prevent the erection or use of insufficient habitations, and the over-crowding and filthy and immoral habits thence arising, which were the chief causes of the fearful outbreaks of pestilence by which England had been so frequently visited. The want of hospitals and abiding places for the poor appears to have been now greatly felt, for the 39th Elizabeth, c. 5, enacts, in order that so good and charitable a work may be effected with as little charge as may be—it is enacted that any person may, within 20 years, at his will and pleasure, by deed enrolled in Chancery, "found and establish one or more hospitals, *Maisons de Dieu*, abiding places, or houses of correction, &c." The hospitals, &c., so founded are to be incorporated, and to have perpetual succession for ever in fact, deed, and name, and are to be ordered and visited as appointed by the founder, but it is ordered that no such hospital, &c., shall be founded or incorporated unless it be endowed for ever with lands, tenements, or hereditaments worth £10 a year. The 43rd Elizabeth, which passed in the year 1601, is the great turning point of our Poor Law legislation, and is still the foundation and text-book of English Poor Law. By it *overseers of the poor* were appointed, and a system of taxation was

established for the setting to work of the poor, and for the necessary relief of the sick, the old, and the infirm. From this point in the history of the Poor Law it will be seen that almost all great efforts of Poor Law legislation were forced on by sickness, and their inefficacy will be anticipated from the absence of all medical system in connexion with poor relief.

The plague of London broke out in 1603, and over 30,000 persons, or one-fifth of the inhabitants at that time perished of it, and the next year an Act was passed for the charitable relief and ordering of persons infected with the plague, whereby “if any infected person commanded to keep house shall, contrary to such commandment, wilfully go abroad and converse in company having any infectious sore upon him uncured, then such person shall be declared a felon, and *suffer death* as in a case of felony.” The Settlement Act was passed in 1662, by which poor persons were restrained to their own parish, and it appears to have been intended for the benefit of London alone. It stopped the self-reliance and hopefulness which stimulated to adventure, making the labourer a kind of serf or slave to the soil. This was destined afterwards to give much trouble, and caused great litigation. This Act also refers to the establishment of workhouses “within the bills of mortality.”

The great plague of London took place in 1664–5, by which, according to some authorities, 100,000 persons perished. Fires were kept up day and night to purify the air for three days, and it is thought that the infection was not totally destroyed till the great conflagration of 1666. On the night between the 2nd and 3rd September of that year the great fire of London broke out, and raged with uncontrollable fury for three days, destroying nearly the whole of the city. This led to the passing of the Act “for rebuilding the city of London,” which is very interesting and important, as affecting the security of property and the health and comfort of persons of every class residing in or resorting thither. Minute regulations are established for the erection of the new buildings. Four sorts of houses are described, to some one of which every new structure is to conform—the benefits of this Act have extended to the present day, and if all the plans of Sir Christopher Wren had been adopted the benefits would have been still greater—but private interests, and the amount and diversity of property affected, prevented the entire adoption of the plans he proposed, which were admirable as a whole. In the reign of Queen Anne a Corporation, called the *Guardians of the Poor*, were first

appointed for the city of Worcester. The Corporation so constituted was empowered to raise money for providing hospitals for the sick poor; and in Plymouth, in 1707, a similar Act also includes a *schoolmaster*. In the reign of George I. the number of workhouses were greatly increased; and inoculation for the small-pox, which is said to have been long practised in Turkey, was introduced into England by Lady Mary Montague, who was allowed to have the operation performed for the first time in England on seven condemned criminals in 1721. Next year two of the Royal family were inoculated. The practice was preached against by many of the bishops and other clergy from that period to 1760. Dr. Mead practised inoculation very successfully up to 1754; and Dr. Dimsdale, of London, inoculated Catherine II., Empress of Russia, in 1768. Of 5,964 who were inoculated between the years 1797 and 1799, only three are said to have died. In 1790 was passed an Act to empower justices and other persons to visit parish workhouses, and any justice of the peace, or any physician, surgeon, or apothecary may at all times visit any parish workhouse and inspect the lodging, diet, clothing, bedding, and medicines, and the justices may make order for the immediate procuring *medical* or other assistance. This is the first direct mention of any medical assistance to be applied to the sick poor.

That sickness is one of the principal causes of poverty cannot be questioned, and since the time of Edward the Third the attention of the legislature has been attracted towards it. In the earlier periods the wants of the sick were ministered to by the clergy, and on the suppression of these the study of medicine and surgery as a profession appears to have sprung up. But with the exception that there is an allusion to *the parish apothecary*, from which we may assume that such an individual did exist, there is no actual proof that there were any attempts made by the legislature for the medical relief of the sick poor, who in consequence were probably left almost entirely dependent on the charity of those members of the medical profession who resided in their immediate neighbourhood for assistance in all cases of sickness. In 1703 an Act was passed for erecting a workhouse in the city of Dublin for employing and maintaining the poor, and in 1735 a similar Act was passed for Cork; both these afterwards became foundling hospitals. This may be said to have been all that was done for Ireland in the way of Poor Law legislation up to that time. In 1771 "an Act for lodging such poor as shall be found to be unable to support

themselves by labour” was passed, and corporations were created in every county, consisting of the bishops, the county members, and the justices of the peace, to be called “the presidents and assistants instituted for the relief of the poor and for punishing vagabonds and sturdy beggars.” The revenues for these corporations are to be provided partly by grand jury presentments and partly by voluntary contributions, and are to be administered through the instrumentality of the corporations for the lodging and licensing the poor to beg for providing *hospitals or infirmaries*, workhouses or *houses of industry* in every county at large and county of a city or town. This was the origin of the county infirmaries in Ireland, the oldest institutions of the kind in this country. In 1805 the 45 Geo. III., c. 3, recites that, “Whereas the distance of many parts of each county from the infirmary therein established does not allow the poor of those parts the advantages of immediate medical aid and advice which such infirmary was proposed to afford, and enacts that in all cases where the governors of the county infirmary shall certify to the grand jury that they have actually received from private subscriptions or donation any sum since the preceding assize for the establishing in any place a dispensary for furnishing medicine and giving medical aid and relief to the poor therein, the grand jury are empowered to raise from the county at large a similar sum for the establishment of a dispensary, and every person subscribing not less than one guinea towards the establishment or maintenance of any local dispensary or towards the county infirmary is entitled to be a member of the body corporate thereof, so far as relates to the management or direction of such local dispensary.” It was said at the time that these dispensaries were perhaps the most extensively useful of all the medical institutions in Ireland, and this Act was considered to be of great importance, more especially as regards the rural population, residing at a distance from town, and who consequently were deprived of access to hospitals and infirmaries, and in 1806 an Act was passed “for the more effectually regulating and providing for the relief of the poor and the management of infirmaries and hospitals,” and all infirmaries and hospitals were now required to make out annual returns, and the Lord Lieutenant may order an examination of their state and condition. In 1818 the 58 Geo. III., cap. 47, informs us that “whereas fever of an infectious nature has for some time prevailed among the poor in several parts of Ireland, whereby the health of the whole community has been endangered.” Corporations are to be

created, and fever hospitals are to be built, and grand juries are empowered to present sums *not exceeding double the amount* of private donations to *fever hospitals*, and they may also in like manner present for *local dispensaries*, and whenever such presentments are certified by the clerk of the crown the Lord Lieutenant may order an advance of money from the consolidated fund; and on the appearance of fever in any town or district he may also appoint a board of health, “to direct that all streets, lanes, and courts, and all houses and all rooms therein, and all yards, gardens, or places belonging to such houses shall be cleaned and purified, and that all nuisances prejudicial to health shall be removed therefrom.” The powers of this Act were extended in the following year, 1819, by the 59 Geo. III., c. 41, which declares that it has become highly expedient to provide for and secure constant attention to the *health* and comforts of the inhabitants of Ireland, and authorizes the appointment of *officers of health*, to carry the sanitary measures specified above into effect. The increase of fever indicated by the passing of these Acts would seem to have been now very marked, and may possibly have been in part owing to the rapid increase of the population, and the consequent overcrowding in the dwellings of the poorer classes. It was also enacted about this time that “the distressed state of the lunatic poor in Ireland should be provided for.” And the Lord Lieutenant was empowered to direct that any number of asylums shall be established in such districts as he shall deem expedient, and that each asylum shall be sufficient to contain such number of lunatic poor, not being less than 100, or more than 150 in any one asylum, as should seem expedient to the Lord Lieutenant. In 1819 a select committee of the Commons, of which Sir John Newport was the chairman, was appointed to inquire into the state of disease and also into the condition of the labouring poor of Ireland with respect to the prevalence of fever. The committee considered the prevalence of contagion in Ireland to be a calamitous indication of general distress. They considered that the Sanitary Act passed the year before had on the whole been productive of good, and they think it of infinite moment that there should be a systematic local control established in all cities and great towns for the removal of nuisances which generate and increase disease, for which purpose they recommend that officers of health should be annually elected by the householders in places containing above 1,000 inhabitants, with power to direct the cleansing of the streets, &c., the removal of nuisances which generate

and increase disease, and the doing of all things necessary for the health and preservation of the inhabitants, and also that such country parishes as think proper may do the same, and that the expenses incurred in the performance of these duties should be levied as a parish rate, and the expenditure accounted for as in the case of other parochial assessments.

In 1817 the Board of Health then constituted in Ireland reported to the Government “that, on a moderate calculation, a million and a-half of persons suffered from fever, which extensively prevailed in that year, and 65,000 died.” The report of the Select Committee, of which Lord Monteagle was chairman, published in 1830, says, that there were then thirty-one county infirmaries, and that during the year they had afforded medical relief to 7,729 intern patients. No county in Munster was without a fever hospital; Cork county had four, and Tipperary eight; but many counties in Ulster and Connaught had omitted to provide them; and the Committee recommended that if the Grand Jury should persist in such omissions the providing of them should be made compulsory. There were then 400 local dispensaries, affording relief annually to upwards of half a million of persons. In 1832 Commissioners were appointed by the Crown, and directed “to make a diligent and full inquiry into the working of Poor Relief in England and Wales.” This report was published in 1834, and it particularly notices “the relief provided by charitable foundations”—a subject which is exciting very great interest in England at the present day. This relief the Commissioners consider to be closely connected with Poor Law relief, being distributed among the classes who are also receivers of the poor rate. The evidence they had obtained “*has forced upon them the conviction that as now administered such charities are often wasted and often mischievous ;*” that they attract the poorer classes, who, in the hope of benefitting by them, linger on in places most unfavourable for industrial occupation; and that “*poverty is thus not only collected but created in the very neighbourhood where the benevolent founders have manifestly expected to make it disappear.*” This is unlikely to be productive of similar results in Ireland, as there may be said to be no charities, that is on a large scale, in this country. (Three or four years ago the *Times* drew attention to the fact that “1,808,000 persons, or four-sevenths of the population of London, received medical and surgical advice gratuitously at the London hospitals;” and the Bishop of London, in a speech delivered at the

same period, said:—"It seems there now exists in the metropolis more than a thousand associations for charitable purposes, administering annually about £4,000,000, this being an average of £4,000 for each society." This was over and above the expenditure of the Poor Law, which was, for the metropolitan unions for that year, £1,316,089, or nearly double what it was for the whole of Ireland.) In 1834 was passed the Poor Law Amendment Act, and immediately after Commissioners for carrying it into execution were appointed, and under an order issued by them were appointed *clerks, treasurers, and relieving officers*. No relief was to be given, *except in case of sickness*, to any able-bodied male pauper or his family; and guardians were empowered to contract with competent persons, duly *licensed to practice medicine*, to be the medical officer or officers of the union, and to attend all sick persons, *and to furnish the necessary medicines and appliances*. (In this way the great majority of Poor Law medical officers of England and Wales are appointed *by contract* at the present day—that is, of the 14,000 medical men of England and Wales, about 4,000, or nearly one-third, are employed under the Poor Law, and on these terms. They supply medicines out of their own pockets, and medical relief is considered to be a species of out-door relief.) There were 28 fever hospitals in Ireland in 1836; and the total expense of supporting these infirmaries, dispensaries, and fever hospitals in the year 1833, as mentioned in the report, was £109,054; and the entire number of cases relieved by them during the year was 30,562 intern and 1,243,314 extern patients. There were eleven lunatic asylums, with a total expenditure of £26,247. Nine houses of industry or workhouses, with an income of £32,967; and three foundling hospitals—two large ones in Dublin and Cork and a small one in Galway—with an income of £36,628; in all £204,896. Of this sum over £50,000 was furnished by Parliamentary grants. This was the state of medical relief in Ireland in 1833. The Commissioners remark:—"The medical relief at present afforded in Ireland is very unequally distributed. In the county of Dublin, exclusive of the city, containing about 176,000 inhabitants and about 375 square miles, there are 24 dispensaries, or one to every 7,333 inhabitants" (at present there are 33 dispensaries). "In the county of Meath, containing about 176,800 inhabitants and about 886 square miles, there are 19 dispensaries, or one for every 9,306 inhabitants" (there are 19 dispensaries in Meath at present). "In the county Mayo, containing 366,328 inhabitants and about 2,100

square miles, there is only one dispensary supported at the public expense" (at present in Mayo there are 29 dispensaries). "Such inequalities," the Commissioners observe, "*are the necessary consequences of a law which renders the establishment of a dispensary contingent upon voluntary contributions.*" In districts abounding in rich resident proprietors a medical charity may be least wanted, but subscriptions are there most easily obtained; whilst in districts where there are few, or possibly no resident proprietors, the aid is most wanted, but there are no subscribers, and consequently there is no medical charity. The same, to a certain extent, holds good even to the present day; for we find that in the poorest districts the dispensaries are largest and the salary lowest. Thus in Connaught there are many dispensaries from 100 to 150 square miles in extent, and several with islands attached, and not even a midwife. There are but 168 medical men in Connaught, and 148 of these are connected with the Poor Law medical service.

The Irish Poor Relief Act was passed in 1838; it empowered the formation of unions, the appointment of guardians, the providing of workhouses, and the establishment of assessment. The commissioners were authorized to inspect and examine into the administration of all hospitals and infirmaries, dispensaries, or institutions for the relief of the sick or convalescent poor, supported in part by grand jury presentments or parliamentary grants. An estimate of the salaries of the paid officers of workhouses was prepared and was printed by order of the House of Lords at this time, from which it appears that the salary of the medical officer of a workhouse capable of accommodating 800 people was calculated to be from £100 to £150 a-year, which is higher than the average salary at the present day, though the qualifications have been greatly increased. The 3 & 4 Vic., c. 29, "to extend the practice of vaccination," was now brought into operation in Ireland, and ninety unions contracted in the form and on the terms proposed. The rate of remuneration recommended was 1s. for each successful case during the year up to 200, and 6d. for each case beyond that number, but the guardians were not restricted to these rates, and in the appendix to the annual report for 1842 the number successfully vaccinated was returned at 104,713. At present the dispensary medical officer must vaccinate every person who shall come to him for that purpose, but he will only be paid for those who reside in his district; the payment is one shilling for every successful case of vaccination, and one shilling for every case of re-vaccination,

provided that the person resides in the district. In 1871 the number of persons vaccinated by the dispensary physicians was 140,220; the births registered for the year being 148,967.

The late Mr. Phelan and Dr. Carr were appointed to make inquiries into the medical charities of Ireland under the Poor Relief Act, and a series of instructions were prepared for the purpose. At the date of the commissioners' third annual report the medical charities in 53 of the unions had been examined and reported upon, and it was thought that a sufficient amount of information had been obtained for reporting the same to Government, and suggesting such corrective measures as appeared to be called for. The report on the medical charities of Ireland, with the heads of a proposed bill for their better regulation and support, was presented to Government in 1842, and was sent to every medical institution in Ireland, and otherwise extensively circulated; and, with the sanction of Government, a bill was prepared in exact conformity with the heading set forth in the report, and was about being introduced into Parliament when the majority of the medical profession in Ireland opposed it so strenuously that Government deemed it inexpedient to proceed with the bill. The bill was therefore suspended for a time, but not abandoned, and the events of the next few years rendered it necessary that it should ultimately become law. In the latter part of the year 1845 the potato disease made its appearance, and shortly afterwards the distress became very great; in 1846 it came earlier than in the preceding year, and in July, 1847, 3,020,712 persons received separate rations. This was the second year that over 3,000,000 individuals had been fed "out of the hands of the magistrates in Ireland." Sir Charles Trevelyan in his "Irish Crisis" thus alludes to this system—"Neither ancient or modern history can furnish a parallel to the fact that three millions of persons were fed every day in the neighbourhood of their own homes by administrative arrangements, emanating from and controlled by one office." The expense of this great undertaking amounted to £1,557,212, and in its performance the machinery of the poor law was found to afford most important aid. Fever, as usual, followed in the train of famine, and in order to check its ravages provision was made "for the treatment of poor persons afflicted with fever," and the Relief Committees were enabled to provide temporary hospitals, to ventilate and cleanse cabins, to remove nuisances, and to procure the proper burial of the dead. The funds necessary for these objects being advanced by

Government in the same way as for furnishing food, upwards of 300 hospitals and dispensaries were provided under this Act with accommodation for at least 23,000 patients, and the sanitary powers which it conferred were extensively acted upon. The expense incurred for these objects amounted to £119,055, "the whole of which was made a free gift to the unions in aid of their rates." By the 10 & 11 Vic., cap. 90, "the Irish Poor Law Administration Act," a Commission was appointed for the administration of the laws for the relief of the poor in *Ireland*, consisting of a "fit person," appointed by warrant under the royal sign manual, who with the Chief Secretary to the Lord Lieutenant and the Under Secretary to the Lord Lieutenant, shall have the control of the administration of the poor law in Ireland. Mr. Banks, in a note on this Act, mentions that notice of the appointment of the Chief Commissioner first appointed appeared in the *Dublin Gazette* of 27th August, 1847; its provisions took effect, and the Commissioners entered on their office on the 28th August, 1847. In the earlier months of 1849 there was greater privation and suffering than at any time since the fatal season of 1846-47; the workhouses were full, poor persons receiving outdoor relief were often compelled to part with a portion of their food to obtain a lodging, the cabins were crowded with ill-fed, ill-clothed, and sickly people, and epidemic disease found victims prepared for its attacks. In the month of March cholera also appeared, and soon extended all over the country. The 10th Vic., cap. 31, the Irish Poor Relief Extension Act; the 10 & 11 Vic., cap. 84, the Vagrant Act; the 10 & 11 Vic., cap. 90, the Irish Poor Law Administration Act; the Medical Charities Act, the 14 & 15 Vic., cap. 68; the Irish Poor Law further Amendment Act of 1862, the 25 & 26 Vic., cap. 83, together with the original Relief Act of 1838 and the Amendment Act of 1843, may be considered as forming the code of Irish Poor Laws. By the 10 Vic., cap. 31, the Commissioners obtained the power of dissolving a Board of Guardians, and at once appointing paid officers to discharge their duties. An annual report says—"Although reluctant in the highest degree to interfere even temporarily with a system of self-government involving the great principle of popular representation in the raising and expenditure of a public fund, it appeared to them that in the immediate circumstances of the country a more imperative object demanded for a time the sacrifice of those considerations, and that it was their paramount duty, by every means which the legislature had placed at their disposal, to provide for the

effectual relief of the destitute poor." Acting on those views and on the occurrence of what they considered to be serious default on the part of the Guardians, the Commissioners at this period dissolved 32 Boards of Guardians, and appointed paid officers in their stead; the default in nearly every instance was either a failure to provide sufficient funds, or to apply them efficiently in relieving the destitute. Full details of each case was laid before Parliament, and the necessity of the proceeding was generally admitted, although it was no doubt much to be regretted that such a necessity should have arisen.

In May, 1849, the number of inmates in the several workhouses was 220,401, with a weekly mortality of 12·5 per 1,000; the number of persons receiving outdoor relief at the same period was 646,964. The number of inquests through actual want, in the first five months of 1849, amounted to 431. The deaths of workhouse officers by fever and cholera numbered 70, including 9 chaplains, 8 medical officers, 7 vice-guardians, and 9 temporary inspectors. The total number relieved out of the workhouse during the year 1848 was 1,433,042.

It was now discovered, after nearly 50 years' experience, that the voluntary dispensary system was quite inadequate for the wants of the sick poor (indeed the Commissioners' Report of 1836 had drawn attention to the fact fifteen years before), and, as might have been anticipated, the pressure brought to bear upon it at this time resulted in its total collapse. In August, 1851, therefore, a Bill was introduced and readily passed, founded upon the Report of the Medical Charities of Ireland of 1842, the necessity for such a measure, and for bringing the rating powers and machinery of the Poor Law in aid of the medical charities, being then admitted by all parties—this is the history of the Medical Charities Act (Ireland), the 14 & 15 Vic., cap. 68, under which one half of the medical men of Ireland are employed. The first Report of the Medical Charities Commissioners says that by the "Medical Charities Act" a partial and imperfect system of medical relief, unattended with responsibility in its agents, and resting on a financial basis at once uncertain in its duration and unequal in its pressure as a tax, has been exchanged for a system uniform and universal, supported out of the poor rates, and "influenced in its administration by well-defined responsibilities, under the direction and control of a central authority." Under the Medical Charities Act two additional commissioners were appointed, "one of whom

shall be a physician or surgeon of not less than ten years' standing, and have the title of medical commissioner;" and medical inspectors, who shall be practising physicians or surgeons of not less than seven years' standing. By "the Inspectors Powers Act" of 1868, medical and lay inspectors shall have equal powers, and in all cases where the commissioners may consider it necessary they shall make joint inquiry. There are at present 10 inspectors, 3 medical (there were 4 medical inspectors until the resignation of Dr. Knox in August, 1870), and 7 other inspectors, all empowered to act in every branch of duty administered by the department, each having a district of unions under his charge. The salaries commence at £500 per annum, advancing by annual increments of £20 per annum to a maximum salary of £800. The salaries of both commissioners and inspectors are paid by the Treasury. The appointment of the two additional commissioners under this Act was published in the *Dublin Gazette* of the 11th Nov., 1851, and the unions were promptly divided into dispensary districts,^a the guardians providing dispensary buildings and medicines, and the dispensary committees appointing medical officers, with salaries to be determined by the guardians, subject to the approval of the commissioners, the commissioners also having the power to regulate salaries, every member of the dispensary committee, and every relieving officer and warden—in all nearly 30,000 individuals—being empowered to afford and order medical relief by means of tickets addressed to the medical officer of the district, directing him to afford medicine and advice, or attend any *poor person* resident therein. No definition is given of the term *poor person*, and at present "tickets" are given with such want of discrimination that in many rural districts dispensary medical relief has entirely absorbed all private practice, and the cost of medicines alone supplied by the Poor Law medical officers to the poor amounts to over £30,000 a year, while the whole expenditure on out-door relief is under £50,000, it being generally believed by the irresponsible issuers of tickets that medical relief costs nothing beyond the wear and tear of the medical officer, whereas, on a close calculation, every ticket issued costs the rates about 4d. for medicine as inevitably as if it was given in beef or mutton or other form of out-door relief. The remuneration per case to the medical

^a The dispensary districts are conterminous with electoral divisions, which were modelled on the then proprietary distribution of property. This leads to great inconvenience, and in most counties the dispensary districts require to be re-cast.

officer is a fraction under 6d.^a By the 18th section of the Medical Charities Act the commissioners and inspectors *may inspect and report upon any infirmary, hospital, or medical institution supported on the whole or in part by any public funds, rates, or assessments*. Powers under the Nuisance Removal and Diseases Prevention Act are transferred to the commissioners and officers appointed under this Act, and continued under the Sanitary Act of 1866, by clause 65 of which, "In Ireland, whenever in compliance with any direction or regulation of the Poor Law Commissioners, any medical officer of a union or dispensary district, or any other medical practitioner specially employed by the guardians for the purpose, shall perform any extra medical service, it shall and may be lawful for the guardians of the union to determine, subject to the approval of the said commissioners, and if they shall not approve of the amount determined by the guardians, for the said commissioners to fix, by order under their seal, such remuneration, proportioned to the nature and extent of such services as aforesaid, as to them shall appear just and reasonable, and the amount of such remuneration shall be paid to such medical officer or other practitioner by the guardians of the union out of the rates." This power was exercised by the Poor Law Commissioners in the North Dublin Union after the last epidemic of cholera. Ireland is at present mapped out into 718 dispensary districts, with 1,055 dispensaries, 800 medical officers, 41 apothecaries, and 159 midwives. The average area of dispensary districts is 40 square miles. In cities of course much less. In the west of Ireland, in some instances, it exceeds 150 square miles. The average population is 7,000 persons, and the average pay £97 per annum. The size of the districts makes it necessary to keep a horse; in some, to which an island is attached, a boat also. Deducting the cost of the keep of a horse and man-servant from £97 a year will give an approximation to the pecuniary value of the appointment. Any one acquainted with the rural districts of Ireland will know that good private practice is exceptional; where it exists it is seldom that it is in the hands of the dispensary doctor; the duties of his appointment are so great as to render it almost incompatible with private practice. The indiscriminate issue of tickets affords such facility

^a The expenditure in carrying out the Medical Charities Act in all its branches—salaries to medical officers, apothecaries, medicines, rent of dispensaries, vaccination and registration fees, &c.—is considerably less than a halfpenny in the pound on the valuation.

for obtaining gratuitous medical assistance that 784,424, or a fifth of the inhabitants of Ireland, availed themselves of it in 1869, 203,200 of whom were attended at their own houses, besides 140,220 persons vaccinated, 900 dangerous lunatics certified for *without fee or reward*, and 560 attendances at bridewells and houses of correction on similar terms. Of zymotic diseases there were 7,424 cases of scarlatina, 51 cases of small-pox,^a and 15,744 cases of fever; besides 97,665 cases of sickness in the workhouse hospitals, of which 13,513 were zymotic diseases. The qualifications required by the commissioners to enable a medical man to obtain one of these appointments are of the very highest medical and surgical character. He must have a degree or diploma in medicine, a diploma or license in surgery, and a diploma in midwifery; and he shall have reached the age of 23 years; in addition, the majority of the dispensary committee who have the appointment will insist that his political and religious views will accord with theirs, and they all will expect him to be a married man. His duties are given at length in Article 21 of the Dispensary Regulations, page 883, *et seq.*, of Mr. Banks' book, and embrace everything in the range of medicine, surgery, midwifery, and psychology, and include every contingency at all times and seasons, in addition to a good general knowledge of book-keeping. By Article 22, if a medical officer of a dispensary district be temporarily incapacitated by illness or other cause from performing his duties, he is to communicate with the chairman or honorary secretary of the dispensary committee, who will appoint a temporary substitute, and the committee shall report the circumstance to the Board of Guardians, who shall, subject to the approval of the commissioners, determine the amount of remuneration, *if any*, to be paid to the substitute. There does not appear to be any similar clause for workhouse medical officers, or for any other officer connected with the Poor Law. The suggestion of "amount of remuneration, *if any*," however, is rarely acted upon, and payment of a substitute during sickness is the rule in most unions, and indeed during an occasional holiday also, provided that the medical officer can induce a man to do his duty for him, which necessitates, as a rule, importation in rural districts.

By the 32 & 33 Vic., cap. 50, Boards of Guardians may, at their discretion, with the consent of the commissioners, grant to any

^a During the epidemic which has just ceased there have been, according to good authority, over 12,000 cases of small-pox in Dublin alone during the last eighteen months.

medical officer of unions or dispensary districts an annual allowance for superannuation not exceeding two-thirds of his salary, such allowance to be paid *out of the rates exclusively*, and not, as in the case of other officers, to be charged to the same account as that to which such salary would have been charged if he had continued in office—*i.e.*, because in the session of 1846 half the salaries of medical officers and the whole of the salaries of district auditors and workhouse schoolmasters and schoolmistresses was voted by Parliamentary grant for England and Wales, which was extended to Ireland in 1867.^a There does not appear to be any reason why the whole of the salaries of the medical officers should not be paid by the Treasury, disease being international—*vide* the present epidemic of small-pox. If one portion of the Empire neglects vaccination or any other law of sanitation, it imposes a pecuniary penalty on its neighbour. If the Poor Law medical service was formed into a branch of the Civil Service, it would take some £70,000 a year of the rates, and it would introduce increase of pay by length of service, promotion and certain superannuation into its ranks. Sanitation can never be efficiently carried out till this takes place. These are the effects of the Poor Law, as given in Mr. Banks' book—in legal phraseology—on half of the medical profession in Ireland, and they will do well to make themselves conversant with it. The most notable differences between the administration of the Poor Law in England and Ireland arose on the introduction of the Medical Charities Act—a class was selected from those on the verge of pauperism, namely, the sick, and provision was made for those which did not necessarily entail pauperism. In England there are but two classes, those receiving indoor and those receiving outdoor relief: amongst the latter are all those attended by the parish doctor, who as a rule is annually contracted for, and is obliged to supply his own medicine out of his own pocket. Of course medical comforts rather than medicines enter largely into this plan of treatment, and the consequence is that the treatment of sickness being by outdoor relief, the relative proportion of outdoor poor to indoor or workhouse poor is excessive; it was 784,906 to 157,740 in 1869, the cost of the former being

^a Sir Dominic Corrigan, at the instance of the Irish Poor Law Medical Officers' Association, during the last Session of Parliament, had a clause inserted in the Union Officers' (Ireland) Superannuation Act, 35 & 36 Vict., c. 89, by which the Registrars of Births, Deaths, and Marriages (*i.e.*, the Dispensary Medical Officers), are made Union Officers, and their emoluments may be taken into calculation in computing their superannuation, which shall be charged upon the rates of the Union at large.

£4 5s. per head, and of the latter £9 11s. 8d. per head; while in Ireland during the same year the outdoor poor were but 50,257, the indoor 288,953: the cost of the outdoor poor being less than £1 per head, and of the indoor or workhouse poor £2 10s. 8d.; but the large class who came under the Medical Charities Act, and were not pauperized by it, amounted to 784,424, and only cost 2s. 6d. per head. The consequence was that the total poor law expenditure for Ireland was under £816,000. In England it was £7,644,307, that is, with but five times the population and a much wealthier country the poor law expenditure was nearly ten times as great as in Ireland, the relative expenditure being 6s. 11½d. per head of the population in England and Wales, against 2s. 11¾d. in Ireland. This speaks volumes in favour of an efficient medical system in connexion with the poor law—so much so that it is being imitated in England. Mr. Banks informs us that the Commission has been renewed and continued from time to time, the last renewal having been made by the “Expiring Laws Continuance Act, 1870,” by which the Commission is continued to the 23rd July, 1870, and the end of the then next session of Parliament.^a This Commission entered on its duties at one of the most trying periods in the annals of this country, as has been already stated, when 3,000,000 persons had received outdoor relief for over two years. In 20 years to reduce that number to 50,000, no one that has not studied poor law history can form an idea of how herculean was the task, and by a late report there are not a sufficient number of able-bodied paupers in the workhouse to perform the necessary work of those institutions. Outdoor relief has always been the great difficulty in the control of pauperism. As for vagrancy, we will never have much of it in Ireland, there being no great charities to encourage either professional or itinerant pauperism.

Mr. Banks has divided his book into three parts, the “Irish Poor Relief Acts,” “the Provisions of Statutes which affect the Collection of the Rates, or impose duty upon Poor Law Officers,” and the “General Regulations of the Commissioners;” there are besides forms and addenda; it includes everything connected with the Irish poor law up to the present time, and although fourteen years have elapsed since the publication of the last edition of the compendium by Mr. Moore, yet Mr. Banks has contrived to

^a By the Local Government (Ireland) Act just passed, the Poor Law Commission has merged into the Local Government Board.

give us all the additional information in nearly 200 fewer pages, which is a great desideratum; the notes are most lucid and explicit, and the index is remarkable for its perspicuity. It would be impossible almost to produce over 1,000 pages of printed matter without some typographical errors, but Mr. Thom may congratulate himself in having barely escaped doing so. The "Compendium of the Irish Poor Law" will prove to be a most valuable book of reference to landlords, as well as to a very large section of the medical profession.

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A Practical Treatise on the Diseases of the Lungs: including the Principles of Physical Diagnosis and Notes on Climate. By WALTER HAYLE WALSH, M.D., &c. Fourth edition, revised and much enlarged. Pp. 656. London: James Walton. 1871.

SPEAKING of the author of this treatise, Sir Thomas Watson says that for his opinions he has a very great, and for his facts, an absolute respect, and we believe this estimate of Dr. Walshe is entertained by most of those who are familiar with his writings and are competent to form an opinion upon them. Possessed of immense experience, rigidly accurate in his statements, observant of the most minute details, severely concise in his writing, Dr. Walshe has been for many years one of the first English authorities, if not indeed the very first, on thoracic diseases. We ourselves have long been familiar with almost every page of the last edition of the work now before us, and we have on more than one occasion been surprised to find alluded to in its pages phenomena of disease and points of practice which other writers were bringing forward as novel, and we believe the volume now before us will occupy, as its predecessors have done, the highest place as a work of reference for all who make diseases of the lungs a subject of careful study.

The subject of caseous infiltration, which was not mentioned in former editions, and that of syphilitic disease of the lung, which was very briefly discussed, are thus described in the present one:—

“CASEOUS INFILTRATION, OR ‘NEUMONIC PHTHISIS.’

“Caseous infiltration or caseous pneumonia represents the various forms of ‘tuberculous infiltration’ of Laennec, gelatiniform, grey and yellow. Such infiltration may occur as an irritative result of the development of the miliary granulation (‘Tuberculo-pneumoniac phthisis’ of Addison),

and so assume the guise of a further evolution of this; or it may have an independent existence; or, as long ago pointed out by Louis, it may entail the formation of miliary tubercle within its own area.

“Under all three conditions the course of the disease may be acute or chronic; if of acute course, the early likeness is to asthenic pneumonia, the eventual to rapidly destructive phthisis; if of chronic course, to ordinary chronic miliary phthisis.

“I—ACUTE CASEOUS INFILTRATION.

“*Symptoms.*—The local symptoms are those of pneumonia of asthenic type; there is no single distinctive unit among them. The assertion that prune-juice sputa are specially frequent is, if I may trust my experience, a grave error. But the pyrexia is less marked, the temperature less raised, and the respiration less frequent than in sthenic consolidation.

“Systemic sympathy (except that signified by genera, adynamia) is, curiously enough, sometimes less obvious than in active inflammatory disease of the lung. There may be very little delirium. The bowels may be extremely constipated, though, as shown after death, the intestines are ulcerated. Deficiency of urinary chlorides habitually occurs.

“By-and-by, say from the fourteenth to the twentieth day, breakage of the infiltrated tissue sets in; the symptoms then become identical with those of acute tuberculization.

“*Physical Signs.*—Whatever these signs be, their original site is basic, or central, as a rule; eventually they travel upwards.

“Inspection discloses nothing special; the measured semicircular width of the affected side, especially if infiltration have occurred on an extensive scale, may be slightly increased; application of the hand may detect some increase in vocal vibration, and some deficiency of chest motion; but it is impossible to say in what part of the chest this deficiency may be most marked.

“The resonance under percussion is more or less impaired—at first in some limited points, subsequently over the surface pretty generally. Dulness may become extreme at the base; though to the last hour various spots may give resonance not positively abnormal. The quality may be markedly tubular in some places, independently of excavation: with cavity, even on a small scale, amphoric. All will depend on the accidental localization of the deposit.

“The respiration, weak in some points, exaggerated in others, assumes bronchial or even faintly tubular quality over the most densely consolidated parts; but the highly marked sniffling, metallic breathing of hepatized consolidation may be wanting, even where the entire lung is very closely infiltrated with softening tubercle—doubtless because the air is never so completely expressed from the vesicles in the latter as in the former case. I have known the breathing, at first distant, high-pitched,

as if hissed between the teeth, subsequently fall in pitch considerably. Bronchial rhonchi, dry and moist, of various sizes and abundance are heard; if the condensation be very dense, the bubbling rhonchi may acquire a ringing character. If excavations form, thin metallic echoing hollow rhonchus may be caught. The characters of the vocal resonance depend on the closeness and extent of consolidation; null, weak or bronchophonic, but not sniffingly so, as in hepatization, it may be whisperingly pectoriloquous over the site of a small deep-seated excavation with intervening condensed and infiltrated texture.

“*Diagnosis.*—It is easy enough to distinguish this form of disease from *acute bronchitis*: the consolidation-signs alone suffice.

“I have known such deadness of percussion-sound and such deficiency of respiration and vocal resonance at the base, that were it not for the maintenance of vocal vibration and the graver constitutional aspect of the case, *pleuritic effusion* might be supposed to explain all.

“I know of no means by which acute consolidating infiltration, destined to liquify and disintegrate the lung, may be distinguished with surety at the outset from *ordinary sthenic pneumonia*. We may suspect, nay, even divine, on the basis of constitutional pravity; but we cannot prove: events must be waited for. The more true is this, that seemingly sthenic inflammation may exist at first, furnish its own signs in more or less perfection, its rusty sputa, and perverted pulse-respiration ratio, and give place to acute caseation.

“*Acute primary cancerous infiltration* of the lung may destroy life in less than four months, and simulate acute caseous solidification; but that disease consolidates the lung less obviously, is attended with signs of tumour about the main bronchus (of the pressure-class and others), often with peculiar hæmoptysis, severe local pain, and diminished width of the side—while *per contra*, its pyrexia is greatly less marked than that of caseation.

“*Treatment.*—The treatment is obviously that of asthenic pneumonia. Whether in any instance, such management has ever prevented otherwise imminent disintegration of tissue is of course unproven.

“CHRONIC CASEOUS INFILTRATION.

“Except in the fact that deposit and breakage take place more particularly at the base and middle height of the lung, there is nothing to distinguish this class of case from ordinary chronic phthisis. In local and general symptoms as in physical signs, the pair are in the present state of knowledge, clinically undistinguishable.

“SYPHILITIC DEPOSIT, OR SYPHILOMA.

“The lungs hold a well-defined place in the class of visceral sufferers from constitutional syphilis.

“Fibro-plastic material, identical in naked eye and in microscopical characters, as also in mode of development, with the gummata and exudative infiltrations of tertiary syphilis in the subcutaneous and sub-mucous tissues, the tongue, the liver, and the heart, appears in the lung in the nodular and infiltrated forms. In either form the disease may be the sole morbid condition in the lung.

“Amyloid and lardaceous degenerations of various viscera are often associated with syphiloma.

“NODULAR DEPOSIT.

“These nodules, rounded in shape, yellowish-white in colour, varying in size from a pea to a walnut, originally opaque, dry, hard, almost creaking under the scalpel, eventually soften down and undergo disintegration with elimination, and leave behind them excavations in the lung-tissue. They may form in any part of either organ, but affect a preference for the bases and periphery. In mode of formation they are rather lumpy infiltrations, than true superadded tumours; the textural elements being found within their area. In the softened material there is much similarity to tubercle, but the microscope exhibits only broken up fibro-plastic cells and granular fat.

“*Clinical history.*—Several recorded cases show that, when small and unsoftened, these syphilomata, even though they be numerous, give rise to no symptoms; a fact in perfect accordance with what is known of cancerous nodules also. Even when they have attained a certain size, their discovery has been commonly reserved for *post-mortem* examination.

“As to physical signs, there can be none if the nodules be small, though their number be large: excess of pulmonary resonance would certainly not form a justifiable ground of their diagnosis.

“If softening and elimination occur, excavation-signs must follow. But these will be less clearly defined than in tuberculous, caseous, or cancerous breakage, in consequence of the deficiency of notable hardening of tissue round the excavated spots. I have not seen any case (nor do I know of any published story of the kind) in which I had clinically followed the excavating process, and found after death nothing but broken-up syphilomata in the lungs.

“INFILTRATED SYPHILITIC DEPOSIT.

“There is reason to believe that the diffused form of the disease is notably more common than the circumscribed.

“*Anatomical characters.*—As in non-diathetic cirrhosis, fibro-plastic substance or induration-matter infiltrates to a variable extent the intercell-spaces, and the interlobular-spaces, and replaces the actual pulmonary parenchyma. There seems to be nothing distinctive in the characters of the syphilitic variety of the product; and the connexion, between the

low quasi-inflammatory process producing it and syphilis, is only to be established by the antecedents of the individual and the co-existence of various positive results of tertiary syphilis. But this is equally true of the indisputable syphilitic formations lingual, sub-mucous, and sub-cutaneous. The infiltrated form, as well remarked by Dr. Wilks in his very thoughtful Essay, is the least characteristic of the two; but there can be no doubt it is greatly the more important clinically.

“*Clinical history.*—Syphilitic infiltration of the lung may, I think, be expected clinically to follow either of two widely different courses; it may undergo absorption, or it may soften and break up.

“The issue in cases of absorption seems exemplified by the following brief narrative:—A gentleman, aged about twenty-seven, had chancre and suppurating bubo—subsequently ulcerated throat and squamous syphilide. Some months later a troublesome cough brought him under my notice; he had had no hæmoptysis; the expectoration, muco-purulent, was destitute of special character; there was no pyrexia; little, if any positive wasting; the aspect generally was not suggestive of tuberculous or other disintegrating lung-disease.

“The left side of the chest had all the physical attributes of health. On the right side high-pitched toneless dulness, not the least wooden in quality, suggestive of soft consolidation, reached from a shade below the clavicle to about the fourth rib, almost joining on with the liver-dulness—it was not perceptible above the clavicle, nor in the axilla, and was much less marked behind than in front. The respiration, high-pitched but weak, reached the ear unattended with dry or moist rhonchus.

“Evidently this consolidation was not tuberculous, nor caseous; its combined unilaterality and extended area stood as a fatal objection to either notion. Cancerous infiltration looked much more probable: for the solidity was at the usual side and occupied the usual site at that side, and the absence of pressure-signs was not incompatible with the existence of that form of the affection. The diagnosis was left undetermined.

“The patient went South; improved in general health; shortly after had epileptiform seizures; came home with palpable extra-cranial, and inferrible intra-cranial, nodes, and his lung unchanged. He was put on a course of bichloride of mercury, under which, among other changes, the lung so completely recovered, that after a while not a particle of difference could be detected in the percussion-note on the two sides. Years afterwards I saw this patient in perfect health.

“The evidence seems very strong here that softish syphilitic exudation had undergone absorption. True, neither in non-diathetic nor in syphilitic fibroid infiltration has the product been actually *seen* in the lung in the soft state; but Guebler has found the exudation-material soft, even quasi-liquid, in the liver of infants cut off by syphilis.

“But here is a graver condition of things. Secondary syphilis, cutaneous, pharyngo-laryngeal and anal, has existed in an individual who is gravely emaciated and enfeebled, who has pyrexia and night-sweats, with cough and more or less expectoration—though not, as far as I chance to have seen, hæmoptysis. Here the physical signs may prove, in a tempered form, those of non-diathetic cirrhosis, limited in the main to one side, especially the class of signs appertaining to bronchitis. When first seen, I do not know any means by which a case of this type could be with surety distinguished from some form of tuberculous or caseous destruction, or from an unadvanced condition of ordinary cirrhosis. But by-and-bye when rapid extinction seems imminent, wasting and prostration being alike carried to extremes, a rally, inexplicable almost on the hypothesis of any one of those three affections, takes place; the patient goes on for a while well, and the diagnosis becomes clearer. Sooner or later he again breaks down—life seems again in jeopardy, and again is saved.

“Now I entertain no doubt that cases of this class have been set down by the older observers as examples of ordinary tuberculous phthisis running exceptionally a remittent or quasi-intermittent course. They are chiefly observed among the dissolute of both sexes; and I suspect they may in some measure supply the real foundation of the opinion that phthisis runs a slower course in habitual drinkers than in sober persons. But only in some measure: for I have observed this slow course in drinkers who were very positively non-syphilitic. Probably, too, the cases of phthisis, ‘cured with mercury’ by our forefathers, were really examples of syphilomatous breakage.

“Eventually death takes place without miliary tuberculization or caseation having occurred; other tertiary syphilitic phenomena oftentimes hastening the fatal issue.

“*Diagnosis.*—The want of proportion between the general symptoms and the local chest-mischief; the unilaterality of the attendant bronchitis; the slight amount or absence of night perspirations, and the syphilitic history, or the actual presence of tertiary changes, are the main guiding elements of diagnosis. But these may be quite insufficient to justify a formal opinion, until time, sufficiently long to display the peculiar course of the disease, has worn away.

“*Prognosis.*—The prognosis, though grave, is very greatly less so than in tuberculous disintegration.

“*Treatment.*—Slight mercurialization, and best by the iodide of mercury, is singularly beneficial in some of these cases: probably the more so, the more positive the evidence of syphilomatous tumour of well-marked dimensions. Iodide of potassium, if there be real objections to the use of mercury, forms the most reliable medicine.

“ Various mercurial and ioduretted remedies may be used with great advantage as inhalations, either with Sturt’s instrument or Seigle’s spray-inhaler.

“ A course of the waters of Aix-la-Chapelle proves singularly beneficial to some of those sufferers.

“ The fitting remedies for all wasting diseases must, of course, be employed as subsidiary aids.”

We do not find that Dr. Walshe has materially altered his directions as to the treatment of the various maladies described in his treatise. In the management of acute pleurisy we find him still recommending bleeding to be practised, from the arm in the robust, and by leeches or cupping in other cases, and the administration of a grain and half of calomel, with one-sixth of a grain of opium every half hour till *very slight* salivation is produced; after fever has ceased he uses flying blisters and gives saline diuretics and iodine, with a nightly dose of blue pill and digitalis. In chronic effusion he continues to use iodide of potassium, liquor potassæ, and digitalis, applies blisters, and gives such tonics as the syrup of the iodide of iron. Against postponing paracentesis too long he warns us, saying that it should be performed when there is threatening asphyxia or syncope; nevertheless, it is evident he does not think it advisable in the early stage in which many physicians now adopt it. He makes a much more prolonged effort to obtain absorption of the effusion by means of flying blisters and drugs than is recommended by Dr. Anstie, whose article we recently noticed. Regarding, as we do, every utterance of Dr. Walshe with the greatest respect, we, nevertheless, on this point find ourselves much more in accord with Dr. Anstie; the frequent total failure of drugs (a fact mentioned by Dr. Walshe himself), the probable carnification of the compressed lung, and the remoter danger of tubercular infection, all lead us to the earlier performance of paracentesis, especially since we have been enabled by the instruments of Bowditch and Dieulafoy to lessen so immensely the dangers of the operation. Referring to the operation, he quotes Dr. Bowditch’s results, but singularly enough makes no allusion to his mode of operating; on the contrary, recommends the chest to be tapped by a medium-sized trocar, a mode of proceeding which we think has been now almost abandoned.

Dr. Walshe’s Notes on “Climate” occupy 74 pages of the work, and contain, to our mind, the most reliable directions to be found in the English language as to change of climate in pulmonary

diseases. It is not very long since this subject was very fully discussed in this Journal, and we will not therefore now advert to it. Speaking of Nubia, Dr. Walshe says:—"If it were given to any association of climatic conditions, exclusive of low barometric pressure, to stamp out the tuberculous evil from a northern constitution, Nubia, I believe, might lay the strongest claim to the possession of the marvellous combination." Unfortunately he who goes there must carry whatever he needs in the way of society, and even the necessaries of life with him a distance of six hundred miles.

COLLECTED WORKS OF SIR J. Y. SIMPSON, BART.,
M.D., D.C.L.

1. *Anæsthesia, Hospitalism, Hermaphroditism, and a Proposal to Stamp out Small-pox and other Contagious Diseases.* By Sir JAMES Y. SIMPSON, Bart., M.D., &c. Edited by Sir W. G. SIMPSON, Bart., B.A., &c. Edinburgh: Adam and Charles Black. 1871. Vol. II. 8vo, pp. 562.
2. *Clinical Lectures on the Diseases of Women.* By Sir JAMES Y. SIMPSON, Bart., M.D., &c. Edited by ALEXANDER R. SIMPSON, M.D., &c. Edinburgh: Adam and Charles Black. 1872. Vol. III. 8vo, pp. 789.

WE have before us the concluding volumes of the new edition of the works of Sir James Simpson. The first volume, which we reviewed at the time of its publication, contained his obstetrical and some of his gynæcological essays. Of the two now before us, one, edited by his son, Sir W. G. Simpson, contains his papers on Anæsthesia and on Hospitalism, along with an essay on Hermaphroditism, originally contributed to the Cyclopædia of Anatomy and Physiology, and one of more recent date entitled "A Proposal to Stamp out Small-pox and other Contagious Diseases." The other, edited by his nephew and successor in the professorship, Dr. Alexander Simpson, contains his Clinical Lectures on the Diseases of Women.

The task imposed on himself by Sir Walter was easier of accomplishment than that undertaken by the editors of the other volumes, inasmuch as the papers had all been previously published. Two of the chapters are, however, of comparatively recent origin,

and come to us with the more interest and impressiveness from being reprints of letters written by his father during his last illness, in reply to a severe and acrimonious attack made on him by Dr. Jacob Bigelow of Boston. In these letters, which he felt to be his last attempt at professional writing, Sir James Simpson has fully established his claims as the discoverer of what has well been characterized as the "greatest of all discoveries in modern times—of the application of chloroform in the assuagement of human suffering," and has left on record a statement that must prevent all future controversy on the subject. Dr. Bigelow's letter was called forth by a newspaper report of a public meeting held in Edinburgh, at which his fellow-townsmen bestowed on Sir James the rank of an honorary burgess of the city. At this meeting the Lord Provost, no other than William Chambers, the well-known author and publisher, "one of the most intelligent and intellectual men of the age," used the following words in the course of his address in presenting Sir James with the freedom of the city:—

"I will not dwell on what you have accomplished in medical science. I will only allude to your discovery—the greatest of all discoveries in modern times—of the application of chloroform in the assuagement of human suffering. That was a great gift to mankind at large, and it well befits us, the Corporation of Edinburgh, to mark our sense of the great act of beneficence on your part by this small compliment."

His lordship subsequently alluded to Simpson's writings on hospitalism, acupressure, &c., and Sir James replied to the observations on chloroform, saying:—

"You adverted to the discovery of anæsthetic effects of chloroform. Perhaps you will allow me to state that there are various manufactories of it in Great Britain, and that a single one of these, located in Edinburgh, makes as many as eight thousand doses a-day, or between two million and three million of doses every year—evidence to what a great extent the practice is now carried of wrapping men, women, and children in a painless sleep during some of the most trying moments and hours of human existence; and especially when our frail brother-man is laid upon the operating-table, and subjected to the tortures of the surgeon's knives and scalpels, his saws and his cauteries."

With a remarkable inaccuracy, Dr. Bigelow regarded this as an assumption on the part of Simpson of the credit of having discovered the means of producing anæsthesia, and attacked him in a

virulent manner for having adopted a foreign discovery, while he ignored the source whence he derived it, and proceeds to say:—

“Sir James Simpson, in a long and eloquent reply, while he complacently accepts the crown of borrowed plumes thus tendered to him, makes not the slightest allusion to the country from which they were plucked, in which country anæsthetic inhalation, with more agents than one, was established, vindicated, and successfully practised, long before it was heard of in Edinburgh or any other part of Europe.”

In reply to this Sir James shows that he was not at the time speaking of the history of anæsthetics, but that he had on other occasions and elsewhere shown that surgeons had, from the earliest ages, studied the method of producing anæsthesia; he recapitulates briefly the chief means adopted for rendering surgical and other operations painless from so early a period as 700 years before Christ down to Davy's suggestion in the last year of the last century to use nitrons oxide, and the observation made by Faraday in England and by Hodman in America forty years ago, that the effects on the nervous system of the inhalation of sulphuric ether and nitrous oxide were similar. He then refers to the experiments, in America, of Jackson and Wells and Morton in the years 1844 to 1846. He shows that the first anæsthetic operation under sulphuric ether occurred at Boston on the 20th September, 1846, when Dr. Morton drew a tooth from the head of Eben Frost; but that two years previously, on the 11th December, 1844, Dr. Wells himself had two teeth drawn while he was under the influence of nitrous oxide—the American dentist working out, to a practical result, the suggestion made half a century before by the English chemist, Sir Humphrey Davy. It is further shown that Wells now tried to exhibit his method at the Massachusetts Hospital, but from an unfortunate accident failed, and was spurned and hooted away; and that Morton, who had been a pupil and former partner of Wells, and assisted him in his experiments, had the idea of the use of sulphuric ether suggested to him by Jackson, and verified the speculation in September, 1846, by operating on Eben Frost, and so “fixed that date as an era in science.”

The method thus established was, however, regarded as applicable only to “operations *brief* in their duration—whatever be their severity. Of these the most striking, perhaps, are amputation and the extraction of teeth.” Its application to midwifery involved many more difficult and delicate problems than its mere application

to dentistry and surgery. To these problems it was that Sir James applied himself, and the first case of midwifery in which sulphuric ether was ever adopted as an anæsthetic occurred under his care on the 19th January, 1847, and a report of the case was published in the *Edinburgh Medical Journal* on the 1st March, 1847; while the first case of labour in which ether was used in America appears from Dr. Channing's report to have taken place on the 7th of April, 1847. The disadvantages attendant on the use of sulphuric ether soon became apparent to Sir J. Simpson, and consequently he entered on an examination of other vapours, performing experiments on himself and others, to find a more suitable agent. In the course of these experiments a trial of the then newly discovered perchloride of formyle, or chloroform, was suggested to him by Mr. Waldie, a chemist in Liverpool, and it was at once found that this fluid was superior to all others as regarded its practical adaptibility; and so great was its superiority in this respect as to lead speedily to its general substitution in Europe, Asia, Australia, &c., for sulphuric ether. No better evidence of this superiority, perhaps, could be adduced than the fact to which Sir James alluded, as to the quantity of chloroform manufactured by a single house in Edinburgh.

The letter to Dr. Bigelow ends with a formulated summary of the foregoing facts, and concludes with a paragraph so pathetic, so kindly and genial, so characteristic of the man, that we must quote it in full:—

“If we try to put into a summarized form the data which we have been discussing regarding the introduction of anæsthesia in America and this country, it appears to me that we might correctly state the whole matter as follows:—

“1. That on the 11th December, 1844, Dr. Wells had, at Hartford, by his own desire and suggestion, one of his upper molar teeth extracted without any pain, in consequence of his having deeply breathed nitrous oxide gas for the purpose, as suggested nearly half-a-century before by Sir Humphry Davy.

“2. That after having with others proved, in a limited series of cases, the anæsthetic powers of nitrous oxide gas, Dr. Wells proceeded to Boston to lay his discovery before the Medical School and Hospital there, but was unsuccessful in the single attempt which he made, in consequence of the gas-bag being removed too soon, and that he was hooted away by his audience, as if the whole matter were an imposition, and was totally discouraged.

“ 3. That Dr. Wells’s former pupil and partner, Dr. Morton of Boston, was present with Dr. Wells when he made his experiments there.

“ 4. That on the 30th September, 1846, Dr. Morton extracted a tooth without any pain, whilst the patient was breathing sulphuric ether, this fact and discovery of itself making a NEW ERA in anæsthetics and in surgery.

“ 5. That within a few weeks the vapour of sulphuric ether was tried in a number of instances of surgical operations in Boston—Dr. Morton being generally the administrator; and ether vapour was established as a successful anæsthetic in dentistry and surgery.

“ 6. That in January, and the subsequent spring months, 1847, the application of sulphuric ether as an anæsthetic in midwifery was introduced, described in our medical journals, and fully established in Edinburgh, before any case with it was tried in Boston or America.

“ 7. That on the 15th November, 1847, the anæsthetic effects of chloroform were discovered in Edinburgh, and that it swiftly superseded, in Scotland and elsewhere, the use of sulphuric ether, and extended rapidly and greatly the practice of anæsthesia in surgery, midwifery, &c.

“ I am very sorry to have taken up so much of your time and my time with such a petty discussion as the present. It has extended to too great a length; but I am a sad invalid just now, and quite unable to write with the force and brevity required. With many of our profession in America I have the honour of being personally acquainted, and regard their friendship so very highly that I shall not regret this attempt—my last, perhaps—at professional writing as altogether useless on my part, if it tend to fix my name and memory duly in their love and esteem.

“ Yours very truly,

“ J. Y. SIMPSON.”

We have here a full history of the discovery of the anæsthetic power of chloroform. It may well be termed “the greatest discovery of modern times,” and “a great gift to mankind at large.” Like all other advances in medicine it was a gradual growth. From the time when the “wine mingled with myrrh”^a was offered to him who conferred the greatest of all benefits on mankind, to the full discovery of the anæsthetic powers of nitrous oxide, was more than eighteen hundred years, but the subsequent progress was rapid. The power of sulphuric ether was next discovered, and then chloroform, which has in these countries, at all events, superseded all others; and it rests on indisputable evidence that it is to Sir James Simpson we are indebted for this “great gift to mankind.”

^a It has been suggested that this was a preparation of Indian hemp.

In the succeeding chapters we have a full exposition of the method of administering chloroform, but our limits will not allow of our dwelling on this or the other subjects treated of in this volume. We must rather pass on to the Clinical Lectures on the Diseases of Women. Those only who remember the state of our knowledge of the diseases peculiar to women in the first years of the present century can appreciate the influence of the teachings of Sir James Simpson. All the diseases of the female system were regarded as arising from debility, and all were treated by tincture of the muriate of iron and astringent lotions. At length, however, improved means of diagnosis were obtained. By the speculum light was thrown on the surface of the uterus; by the sound its size, position, and relation to surrounding parts were brought within observation; by the sponge, or other form of tent, its cavity was opened for exploration and treatment; by an improved knowledge of physiology its connexion with other parts of the system was recognized, its power over the functions of other and distant organs, and their reactions on it. To enumerate these strides in our knowledge, some of which originated with him, and all of which were advanced by him, is but to enumerate some of the labours of Sir James Simpson, as will be abundantly evident from a perusal of the clinical lectures before us, and his other gynæcological essays.

The greater number of the lectures were originally published in the *Medical Times and Gazette* during the years 1859–1861, but the series was never completed. Some others were prepared for publication, and some even printed, but were never published. The remainder have been compiled from the author's lecture notes, and from notes taken by the editor and by Dr. Black, who edited the first volume. Ten out of the fifty lectures in the volume are now published for the first time. It is unnecessary to give any specimen of these lectures; yet the following extracts from the description of *subinvolution of the uterus*—a condition not recognized till described by Sir James Simpson—are so interesting, that we hope to be forgiven for reprinting them here:—

“THE PATHOLOGICAL NATURE OF THE DISEASE.

“After parturition, as you are aware, the greatly enlarged uterus begins regularly to involve or absorb, and rapidly diminishes in size, till it has been reduced almost to its pristine dimensions. I have had occasion, in another department of our course, to call your attention to the wonderful changes that go on in the uterus in consequence of impregnation, and to

tell you how, from being a small body, two or three inches long, it comes, in the short space of nine months, to attain the length of a foot or more, while it is correspondingly enlarged in all other dimensions and diameters. And I may here repeat the conviction that I then expressed, that if ever the laws of nutrition are to be clearly made out, the inquiry will probably be most successfully pursued by investigating these laws as they are seen in operation on a large and gigantic scale in this very organ; for in no other organ, so far as I remember, do we ever see nutrition and growth going on so rapidly as here, where out of a mere mass of nucleated fibres and cells an enormous body of numerous and well-marked muscular fibres become developed within the course of the nine months of pregnancy. Hardly less wonderful than this great development of the uterine walls during the progress of gestation, is the still more sudden diminution that occurs in these walls after parturition has been completed. The muscular fibres—perhaps weakened and exhausted as a result of their violent action during the parturient process, and so rendered prone to degenerate—and deprived also, to some degree, of the supply of blood brought to them so profusely during the time that the uterine circulation was so much exaggerated, now undergo, after parturition, a fatty metamorphosis, in consequence of which they almost all melt down and disappear; so that in the brief space of five or six weeks the whole organ dwindles down and diminishes to nearly its original dimensions. The muscular walls of the uterus are not absorbed as muscle, but like many other effete structures, they first undergo fatty degeneration, and are absorbed as fat. This fatty degeneration commences on the inner layers of the walls, and passes from them to the outer layers. The fatty metamorphosis of the uterine muscular fibres appears under the microscope, a few days after delivery, as a series of glistening particles deposited in the course of each individual fibre. Now the patients, with whose cases I introduced my present observations, are suffering from this curious condition of the uterus, that after the birth of their last children, this retrograde metamorphosis of the uterus has not taken place during the puerperal month, or rather, let me say, has taken place only to such an imperfect degree that the uterus is of the size we usually see it at the end of the first week or so after delivery. They are suffering then from a hypertrophy of the uterus which is pathological in its permanency, but which results from a hypertrophy purely physiological in its origin.

“ITS ETIOLOGY.

“What, you will be ready to ask, is the cause of this enlargement of the uterus remaining permanently? How is it that the retrograde changes in the uterus become arrested, and the absorption or involution of its walls is prevented? To these questions it would be difficult, or indeed

impossible, with our present limited knowledge of the processes of development and degeneration that go on in the uterus, to furnish a satisfactory reply; but let me point out to you some causes which occasionally appear to lead to the production of this hypertrophy from arrested involution of the uterus.

“1. *Rising too soon after Confinement.*—We know that both in the healthy and in the morbid state the uterus is apt to become more congested when the patient assumes the erect position, and that a morbid degree of congestion interferes with various physiological functions. And we can easily imagine that if a delicate woman gets up too soon after her delivery, and remains for a lengthened period erect, while the womb is still more than usually large, the circulation in its walls might get so impeded, and such an amount of congestion be produced, as would prevent the normal changes in its walls, and impede the free absorption of its disintegrated particles.

“2. *Repeated Miscarriages.*—However it may be, we know, further, that in a number of cases an enlarged condition of the uterus, of the same nature as that of which I am speaking, results from the frequent and rapid recurrence of a series of miscarriages or abortions in the same patient. You are aware that a woman who has once aborted is extremely liable again to abort at the same period whenever she again becomes pregnant. In such cases it is, moreover, remarkable that the patient often conceives again in a very short time after the occurrence of the abortion; and when this process has been several times repeated—the uterus undergoing the enlargement of a new pregnancy, before it has had time, as it were, to recover perfectly from the hypertrophy of a preceding one, the case sometimes ends in a complete disturbance of the normal physiological process of degeneration and diminution in the uterine walls; and the womb is left in a permanently hypertrophied condition.

“3. *Metritis.*—Again, if you inquire minutely into the history of patients affected with this form of disease, and ask them particularly as to whether anything has gone wrong with them in their puerperal state, you will very frequently find, as in the case of the second of our Hospital patients, that within a short time after their confinement they have been the subject of an attack of inflammation in the uterus or ovaries, or neighbouring pelvic organs. They will, perhaps, tell you that a week or two after their child was born they had a shivering, followed by pain in the region of the womb and more or less fever, which compelled them to remain in bed for some time. It would appear as if the occurrence of metritis, or perimetritis, in the puerperal female, exerted such an influence on the substance of the uterus as to prevent the occurrence of those changes that lead normally to its diminution in size.

“ITS SEMEIOLOGY.

“The patient whom I have imagined you to be questioning as to the history of her malady will probably tell you, further, that, after she had recovered so far from her inflammatory attack, and from the consequences of the bleeding and blistering to which she had been subjected for its cure, as to be able to walk about again, she began to be conscious of a feeling of discomfort in the lower part of the abdomen, to which she had never before been accustomed. There is frequently a sense of weight or bearing down of the uterus, of distress in the lower bowel, and of uneasiness in connexion with the action of the bladder, and a weakness, sometimes amounting to actual pain, in the lower part of the back, and, in some cases, a numbness of the lower limbs, which are all new to the patient. She attributes, most likely, those feelings to weakness, and expects that as she gains more strength the uneasy sensations will disappear. But some months may elapse, and she begins to be disappointed at her never getting entirely relieved of this local trouble; and after lactation is accomplished, if, indeed, she have been able to nurse her child at all, she finds that her menses do not return regularly, or become too profuse and painful. Leucorrhœa, too, is sometimes present to a greater or less extent; and altogether the patient is in a state of confirmed and anomalous bad health that is difficult of endurance. By means, perchance, of tonics and sedatives she strives to regain her health and alleviate her uneasiness, and continues for a time to hope that her former strength will still return, and that her ailments will disappear. Gradually, however, the conviction becomes forced upon her that something besides time will be needful for her cure, and that some kind of medical treatment is required for her relief. Accordingly she comes to you, and when you have heard a history such as that I have endeavoured to narrate, you come to the conclusion that she is labouring under some disease of the uterus. But what the precise nature of that disease is you will not be able to fix and determine by studying the mere history of the symptoms. To make out a correct differential diagnosis, you must institute an examination of the uterus.

“ITS PHYSICAL DIAGNOSIS.

“On placing the hand over the abdomen, you can usually feel the enlarged uterus rising in the form of a tumour out of the pelvic cavity, and lying above the pubes, more especially in those cases where the hypertrophy is very considerable. In all cases you can discover, on making an examination *per vaginam*, that the vaginal portion of the cervix uteri is enlarged—for this is a form of hypertrophy in which every part of the organ is implicated; and you find the whole uterus to be unusually large and heavy. This kind of local examination is, in the

majority of cases, most satisfactorily carried out when the patient is laid on her back ; sometimes it is more convenient to have her placed somewhat laterally. But in every instance of this kind you must bear in mind the importance of making an examination with *both* hands simultaneously—the forefinger of one hand being employed to explore the uterus through the vagina, while the fingers of the other are applied to the fundus through the medium of the anterior abdominal wall. There is, perhaps, no variety of uterine disease in the diagnosis of which this sort of examination can be employed to more purpose than in the case of simple enlargement of the organ. In a few patients the abdominal walls are too thick to admit of your feeling anything very distinctly on palpitation ; and there are others, still fewer in number, in whom a certain degree of uneasiness renders the necessary pressure painful to the patient. When you have thus got the uterus between the two hands, you can easily recognize the existence of the hypertrophy, and even determine the degree to which it has taken place. You can feel that the swelling is not due to the presence of fibroid masses in the walls of the uterus, for there is no irregularity and no peculiarity in its shape. It has unmistakably the shape and contour of the healthy organ ; it is only that organ in a state of equable hypertrophy. Such a condition of matters might still, however, possibly be due to the presence of a fibroid tumour growing from the submucous layers of the uterine wall, and projecting into its interior ; and to make sure that there is no such tumour present, you must have recourse to another simple means of exploration, viz., the introduction of a uterine sound. The cavity of the healthy uterus measures usually, as you know, about two and a half inches in length ; and when the sound is introduced, you find its point is arrested at the fundus, when the knob placed on the convex side of the instrument, at two and a half inches from the extremity, has reached the level of the external orifice of the uterus. Where the organ is enlarged, however, the knob I speak of slips past the guiding finger, and the instrument runs up into the interior to a depth of three or more inches ; and when the enlargement of the uterus is of the kind I have been describing as dependent on defective involution of the organ after delivery or miscarriage, the instrument usually slips in at once without the slightest difficulty, for the uterine orifice and canal are preternaturally patent. When, on the other hand, the enlargement is due to the presence of a tumour in the cavity of the uterus, the point of the exploring instrument usually meets an obstruction immediately on traversing the canal of the cervix, and it may require, in such a case, the exercise of some skill and a little gentle manipulation in order to pass it into the interior of the uterus at all. Besides, after the sound has been fully introduced, you can often feel with it the projecting body ; while in the

case of the simply hypertrophied organ the sound passes freely and unobstructedly round in all directions. If with the sound thus introduced into its interior, you raise the uterus towards the hand placed over the abdomen, you will be able to make out more distinctly and definitely than ever the real nature of the case. There is one difficulty in connexion with the use of the sound in such cases, of which I ought perhaps to warn you, and it is this:—The great weight of the fundus of the uterus, sometimes aided by inflammatory adhesions, gives a strong tendency to various displacements of the organ, and more particularly to retroflexion of it. Such a complication you must accordingly be prepared to expect; and in passing the sound you must then remember to turn it with the point and concavity looking backwards towards the sacral promontory. It was not long after I had begun to make use of the sound in the diagnosis of uterine diseases and disorders, that I first fell in with and recognized a case of sub-involution of the uterus. The patient, whom I saw in consultation along with the late Dr. Abercrombie, was the wife of a medical gentleman, and there was much perplexity as to the nature of her disease. There was a large, rounded tumour lying over into the right iliac region, which was thought to be possibly either an inflamed ovarian tumour, or an abscess, as there was considerable pain on pressure. On passing a sound, however, it was found to run right up at once about four inches into the very centre and top of the tumour. The supposed tumour was thus shown to be neither more nor less than the uterus considerably enlarged and turned somewhat to one side, as sometimes happens in such cases. That was the first occasion, so far as I know, in which this kind of uterine hypertrophy was clearly made out; but since then I have seen it very frequently, usually as a result of inflammation after delivery, but sometimes associated with repeated miscarriages in the relation both of cause and effect."

It is the penalty that great men pay to mediocrity that their greatness excites feelings of envy, hatred, malice, and all uncharitableness; like others of his class, Simpson has had to pay this penalty. But we cannot close this notice of his works without giving expression to our surprise and indignation to find that the pages of a journal, hitherto ranking amongst the first in medical literature, should have been disgraced by a series of attacks on his fame and reputation—attacks which, by their feeble attempt to displace the subject of them from the high rank he so worthily filled, can only reflect discredit on their author.

How pleasant it is to turn from this to the estimate of his character and labours expressed by one who, himself great and eminent, is able to appreciate greatness in another. The

distinguished author of the Hunterian Oration for 1871, in speaking of Simpson, has not hesitated to say that "in scholarship, in antiquarian lore, and in extent of practice, he has had few equals in our profession, and rarely have men earned such distinction as he did out of their ordinary walk in life. The zeal with which he investigated any subject, professional or otherwise, was unbounded, and it has been, I venture to say, fortunate for modern anæsthesia that Simpson lived." Such is the language used by Sir William Fergusson in speaking of our author, nor are his concluding words less forcible when he says:—"I cannot resist the opportunity of paying my humble tribute of personal commemoration to one who—in his combined character of physiologist, archeologist, obstetric physician and surgeon, and the giver of the greatest possible good to the greatest possible number—has perhaps never had an equal."

Neuralgia and the Diseases that Resemble it. By Dr. FRANCIS E. ANSTIE, M.D., &c. London and New York: Macmillan and Co. 1871. 8vo, pp. 296.

A TREATISE on Neuralgia by Dr. Anstie is sure to contain carefully considered opinions expressed in vigorous language, and will be read with interest by the profession. In his article on Neuralgia, in *Reynolds' System of Medicine*, the author had already brought forward his special views, and in this volume we have a more elaborate and carefully worked out account of the subject.

The work begins with a somewhat metaphysical chapter on "Pain in general." It is urged that pain is not a hyperæsthesia; that it involves not a heightening but a lowering of nerve function, and that painful sensation is different from common sensation not in degree but in kind. The conclusions at which the author has arrived on this subject are summarized in the following propositions:—

"1. Pain is not a true hyperæsthesia; on the contrary, it involves a lowering of true function.

"2. Pain is due to a perturbation of nerve force, originating in dynamic disturbance, either within or without the nervous system.

"3. The susceptibility to this perturbation is great in proportion to the physical imperfection of the nervous tissue, *until* this imperfection reaches to the extent of cutting off nervous communications (paralysis)."

It seems to us that Dr. Anstie and others who have formerly adopted a similar view, have refined on this subject till they have lost sight of the significance of ordinary every-day experience. Without entering into unnecessary physiological refinements we may take for granted that the principal function of sensory nerves is to convey impressions to the nervous centre, and if these impressions be increased in intensity it is strictly correct to say that the nerves which conduct them are brought into increased functional activity. We may fairly omit from our consideration the hypothesis, which has some plausible arguments in its favour, that a different set of fibres are employed for the conduction of different impressions, inasmuch as this does not affect the question under examination. If we take the simplest case and confine our discussion to the consideration of pain produced by external impressions or excitations, we are met by the familiar fact that many impressions which at one period produce indifferent or pleasurable sensations pass on by insensible gradations, as they are increased in intensity, to a point at which pain is produced. It is impossible to argue seriously that the conduction of these intensified and now painful impressions involves a lowering of the functional activity of the nerve which transmits them. The office of the nerve is merely to inform the nervous centre of the impression, and the judgment, so to speak, of its character, whether painful, pleasurable or indifferent, does not come within the function of the nerve at all. There are, no doubt, some instances in which the production of pain is most easily explained by supposing some change to have taken place in the nerve itself; some, also, in which we have reason to regard the nervous centres as at fault; but there are many others in which these explanations are quite inadmissible, and it is certainly unnecessary to introduce an imaginary dynamic perturbation to account for phenomena which are susceptible of a simple interpretation. Nor do we think that, unless with very considerable limitation, Dr. Anstie's third proposition, as quoted above, can be admitted. We suspect that susceptibility to pain is, as a rule, greatest in the most finely organized nervous systems, in those which are the most perfect instruments for the exercise of the highest and noblest functions,

“Like a beast with lower pleasures, like a beast with lower pains,”

is good physiology as well as good poetry.

Dr. Anstie draws a distinction between the *function* and the *action* of nerves which is ingenious, but we think unsatisfactory:—

“Now the function of individual nerves is very nearly a constant quantity, at least it varies only within narrow limits; while the action of the same nerves may be almost anything. The function of the nerve is that kind of work for which it is fit when its molecular structure is healthy; it is the series of dynamic reactions which are necessarily produced in nerve-tissue by the external influences which surround and impinge upon it in the conditions of ordinary existence. The action of nerves, under the pressure of extraordinary influences, may include all manner of vagaries which really have nothing in common with the effects of ordinary functional stimulation; which are, in fact, nothing but *perturbation*. No one can suppose, for instance, that the explosive disturbances of nerve force which give rise to the convulsions of tetanus are any mere exaggerated degree of the orderly and symmetrical action by which the healthy nerve responds to the stimulus of volition ordering a given set of muscles to contract: they are something quite different in kind.”

We cannot regard this distinction as resting on a sound basis. The modes of action and suffering which we call morbid bear, at all events in the great majority of cases, as definite and constant relation to the abnormal excitation by which they are engendered as the healthy reactions produced under the ordinary conditions of existence. Morbid manifestations of nerve force result from the operation of causes which are more or less clearly known, and are as much a part of the functional activity of the nerves; when these causes are in action, as the simplest and most ordinary phenomena of our every-day life. What is abnormal or morbid is not the nerve action but the cause which engenders it. It would be abnormal, and a decided evidence of lowering of nerve function, if pain were not felt when a hot iron is applied to the skin, or when a chemical irritant is brought into contact with it.

We have entered upon this branch of the subject at somewhat disproportionate length, because Dr. Anstie's views on this point have, we think, injuriously affected his work, in which the depression doctrine is much too exclusively adopted.

The pathology of neuralgia, according to Dr. Anstie, is sufficiently simple, and is described as follows:—

“I hope to show clearly, that as regards both the seat of what must be the essential part of the morbid process, and the general nature of the process itself, we possess very definite information indeed. I expect, in short, to convince most readers that the essential seat of every true neuralgia is *the posterior root of the spinal nerve in which the pain is felt*, and

that the essential condition of the tissue of that nerve-root is *atrophy*, which is usually *non-inflammatory in origin*. This doctrine seems, at first sight, presumptuous, in the confessed absence or extreme scarcity of dissections which even bear at all upon the question. But one source of the extraordinary interest which the pathology of neuralgia has long possessed for me resides in this very fact—that I am convinced we can demonstrate the above apparently difficult theorem by means of pathological observations on the living subject, taken in conjunction with physiological experiments, and with only the aid of a very few isolated facts of positive morbid anatomy. I need hardly say that I am none the less anxious for that further assurance which we shall one day, perhaps, obtain by means of greatly improved processes for microscopic detection of minute changes in nerve centres; but looking to the necessary rarity of opportunities for *post-mortem* examinations of the nervous system in any but the most advanced stages of neuralgias, it will hardly be disputed that, if I am right in my main position, we are singularly fortunate to be so unusually independent of the need for this source of information.”

The arguments which are brought forward in support of this position are, mainly, that neuralgia in many cases is a hereditary neurosis; that it alternates with other neurosis in the same individuals; that positive anatomical changes either of the terminations of nerves or of superficial branches are infrequent factors in the first production of neuralgia. That locomotor ataxy, in which the chief anatomical change is a progressive atrophy of the posterior columns of the cord involving the posterior nerve roots, is constantly attended by neuralgia, and that the reflex influences which intervene in the causation of neuralgia and its complications, are so numerous and complex that they cannot be accounted for except by the supposition that there is in every case of neuralgia a central change which is the most important factor in the production of the pain and of the secondary phenomena. This view is, we believe, novel; and, while it is open to many objections, it is certainly deserving of attentive consideration.

There is a very good account of the clinical history and complications of neuralgia, the diagnosis and prognosis of the disease are fully handled, and the treatment is discussed at ample length, and with much fulness of detail. We can only find space for the following observations, which indicate a valuable resource in the management of these cases, although the recommendations are somewhat too strongly put:—

“It is, unfortunately, by no means a frequent occurrence that the

sufferer from this malady is inclined to eat largely, but the few patients of this type that I have seen were, in my judgment, distinctly the better for it. Far more common in neuralgia is a disposition of the patient to care little for food, to become nice and dainty, and in particular to develop an aversion—partly sensational and partly the result of morbid fear about indigestion—for special articles of diet. Dr. Radcliffe pointed out the special tendency of neuralgics to neglect all kinds of fat; partly from dislike, and partly because they believe it makes them ‘bilious;’ and I have had many occasions to observe the correctness of this observation. In fact, by the time patients have become sufficiently ill with neuralgia to apply to a consulting physician, they have already, in the great majority of cases, got to reject all fatty foods, and have cut down their total nutriment to a very insufficient standard. Young ladies suffering from migraine are especially apt to mismanage themselves, to a lamentable extent, in this direction: this is natural enough, because the stomach disorder seems to them the origin of the pain, instead of being, as it is, a mere secondary consequence of the neurosis. But it is not only the sufferers from sick headache in whom we find this tendency to insufficient eating, especially of fat; not to mention that all severe pain usually tends to disorder appetite and make it fastidious, there is nearly always some wiseacre of a friend at hand, ready to suggest that neuralgia is something very like gout, that gout is always aggravated by good living, and *ergo*, that the patient should be ‘extremely cautious as to diet;’ the end of which is that the poor wretch becomes a half-starved valetudinarian—but, so far from his pain getting better, it steadily becomes worse. I cannot too strongly express the benefits that I have seen accrue, in the most various kinds of neuralgic cases, from persistent efforts to remedy this state of things, and to convert the patient from a valetudinarian to a hearty eater; and I wish particularly to say that this success has always been most marked when I have from the first insisted on fat forming a considerable element of the food. Cod liver oil is the form in which I much prefer to give it, if this be possible; there can be no mistake about the relatively greater power of this than of any other fatty matter, I believe simply from its great assimilability. But the very cases in which we most urgently desire to give fat are often those which the patient’s fantastic stomach openly revolts at the idea of the oil; we must then try other fats; and we should go on trying one thing after another—butter, plain cream, Devonshire cream, even olive or cocoa-nut oil (though these are the poorest things of the sort we can use)—till we get the patient well into the way of taking a considerable, if possible a decidedly large, daily allowance of fat, without provoking dyspepsia. It is surprising what can be done in this way by perseverance and tact, and it is no less striking to observe the good effects of the treatment.

Nothing is more singular than to see a girl who was a peevish, fanciful, and really very suffering *migraineuse* brought to a state in which she will eat spoonful after spoonful of Devonshire cream, and at the same time lose her headaches, lose her sickness, and develop the appetite of a day-labourer; and though such very marked instances as this are uncommon, they do sometimes occur, and a minor, but still important, degree of improvement is very frequent.

“As for the *modus operandi* of the fatty food, there is no certainty. Dr. Radcliffe believes it acts as a direct nutrient of the nervous centres; and I also cannot help feeling that there is some evidence in favour of this idea. But, whether this be so or not, there is another kind of action of fat that is more simple and obvious; namely, it seems to be certain that the enrichment of the diet by fat greatly assists the assimilation of food in general, and thus the patient's nutrition is altogether improved.

“It is not merely, however, by increasing any one element of food that we should seek to enrich the diet of neuralgics, but rather by such a steady and persistent effort as Dr. Blandford describes, to increase the total quantity of nutriment to perhaps as much as one-third more than the patient would probably have taken in health. To those who from prejudice are incredulous of the propriety of this method, I would only say, ‘*try it*, and I venture to say your incredulity will disappear.’ More especially, I would urge the great importance of this system in modifying the nervous status of *very young, and also of aged*, sufferers from neuralgia; it is the indispensable basis of a sound treatment for such patients.”

A number of painful affections which resemble neuralgia, and which have in many cases a pathological kinship with it, are considered in the latter sections of the work.

The treatise is of real mark and importance, and although Dr. Anstie has not convinced us of the correctness of some of his views, it is undoubtedly a work which is calculated to throw considerable light on some obscure and imperfectly known points.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

The Division of the Posterior Fold of the Membrane of the Drum.^a A Contribution to the Surgical Management of Diseases of the Ear. By Professor AUGUST. LUCAE, M.D., Berlin.

Translated by GILBART DE P. NICHOLSON, M.D., Berlin, at author's desire.

IN a great quantity of the diseases of the organs of hearing which, rightly or wrongly, are classed together under the name of catarrh of the cavity of the drum, examination in no way shows that which can be called, according to ordinary phraseology, a catarrh. If even the speculum shows, as in a genuine catarrh, the so-called catarrhal turbidity and the increased concavity of the membrane of the drum, still one misses very frequently, upon auscultation performed with catheter and otoscope, the rattling sound characteristic of a collection of secretion, and in the place of this one hears a perfectly free bellows murmur, indicative of an abnormally dry state of the mucous membrane of the cavity of the drum.

These cases, only too well known to the aural surgeon, form, alas, a very large per-centage of all diseases of the middle ear. Only in the smaller number of these cases, after the use of the air-douche, is it usual for the hearing to be greatly improved, accompanied by a relaxation

^a The following observations ought properly to have been published in summer, 1870. They had, however, to be postponed, on account of the mobilization of the army, and my being called to serve in it. Having returned from France in the spring of the year 1871, I found a treatise by A. Politzer, which had appeared in the meantime in the *Vienna Weekly Journal of Medical Science*, on Scars of the Membrane of the Drum, and which the author had been so good as to send me. There it is reported, as a sort of appendix at the end of the paper, that in two cases where the greatly increased concavity of the membrane of the drum was joined to a considerable bending outwards of the fold of the membrane of the drum, stretching from the short process of the malleus to the posterior wall of the meatus auditorius, a striking improvement in hearing resulted from cutting through the tightly stretched fold, whilst the previous treatment, which consisted of injecting air into the cavity of the drum, had had little effect. I am glad that we both arrived at the same idea independently of one another.

in the abnormal concavity of the membrane of the drum; and these cases offer a relatively favourable prognosis, inasmuch as an essential improvement in hearing is only procured by repeating the air-douche often, the carrying out of which, in the experiment of Valsalva or Politzer, may be entrusted to clever patients themselves.

If these cases are examined very exactly with the speculum, one repeatedly finds, apart from the most different kinds of turbidity of the membrane of the drum, a peculiar anomaly of its concavity, which belongs especially to the most characteristic conditions of the membrane of the drum. The short process of the malleus, namely, which normally projects only a little over the level of the membrane of the drum, is pushed outwards to the same degree as the middle portion of the membrane of the drum is drawn inwards with the handle of the malleus. The consequence is, that it appears as a strongly projecting protuberance, tightens the upper part of the membrane of the drum towards the outside, and causes there a peculiar formation of folds, which characterizes itself by a fold drawn tightly from the short process of the malleus backwards. If the air-douche is allowed to play upon the inner surface of the membrane of the drum, this fold is smoothed out more or less on the retrogression of the short process, only to appear again after a short time, which takes place not unfrequently with the diminution of pressure.

These facts, however well known to those conversant with examination by means of the aural speculum, have received very little attention up to this in their relation to acoustics. The disturbances in the function of hearing observable in this form of "catarrhal" disease of the ear, apart from the strikingly thickened state of the membrane, have been with reason derived from the abnormal tightness of the membrane of the drum, and this last has been brought into connexion with the funnel-shaped concavity. If one considers, however, that the membrane of the drum appears in its normal condition to be drawn inwards by the chain of the bones of the ear and by the tensor tympani muscle, it is excessively hard to determine, in a given case, whether one has to do with a pathological tension or not; so much the more, as a considerable retraction of the membrana tympani, with considerable projection of the short process, is sometimes observable by those hearing normally. If, however, along with that, the formation of folds already mentioned is found at the same time clearly marked in the neighbourhood of the short process, an abnormal condition of tension may be undoubtedly assumed only but as yet affecting the upper segment of the membrane of the drum.

From this point of view, since the year 1868, I have undertaken the division of this posterior fold, for the purpose of reducing the tension of

the membrane of the drum; at first very successfully in a great number of the described cases.

This is a very slight operation, easy of performance, which offers no great difficulty, even with a very narrow meatus auditorius externus; for these narrowings, for the most part, only affect the anterior and undermost wall of the bony section, and in this way leave the passage open to the upper and posterior quadrant of the membrane of the drum.

Next as to the technicality of the operation. I make use of my bayonet-shaped couching needle,^a which I have already used for many years to puncture the membrane of the drum, for the purpose of evacuating secretions of the middle ear. The tolerably strong shaft of the needle is bent like a bayonet, in order that the operating hand may not throw a shadow on to the field of operation already so small; and I prefer, for obvious reasons, this form of the simple angular bend. There is no necessity for an especial assistant at this operation—a stand to fasten the illuminating mirror is, however, a pressing necessity, since in the majority of cases one is compelled to fix with the left hand the helix of the ear and the aural speculum. I recommend for this purpose the simple mirror-holder described by me,^b which can be easily fastened to the shoulder of the patient. The pain is, in general, slight, and passes off quickly, seldom lasting many hours after the operation. Concerning the performance of this operation no particular description is necessary. It is to be recommended, however, when dividing the fold, to introduce the point of the needle as near as possible to the short process, in order to avoid an injury to the long leg of the incus.

Immediately after the operation the upper part of the membrane of the drum appears perceptibly relaxed, the posterior fold more or less perfectly smoothed, and the membrane of the drum takes a more even condition upon recession of the short process. The action of the operation is exactly similar to that of the air-douche, but more enduring in its effects. The hæmorrhage is, as a rule, so slight that only a small drop of blood covers the minute wound caused by the operation, where it dries up little by little and is absorbed. Still, however, I have observed greater hæmorrhage, which may be accounted for by the fact of the blood vessels which pass from the upper wall of the meatus auditorius to the handle of the malleus having been unusually injected; in these cases the blood usually flowed inwards into the cavity of the drum.

As for the subjective changes, a greater or less improvement in hearing was usually the immediate result; more rarely the improvement was gradual, especially in cases of great hæmorrhage into the cavity of

^a To be had at the instrument makers, Jannin, late Kittle, Charity Cheape, Berlin.

^b Berlin Clinical Weekly Journal, 1870, No. 14.

the drum, after the complete absorption of the blood. At the same time almost all the patients mentioned a remarkable feeling of freeness of the head, and of the same half of the head. If subjective aural sensations were present before the operation, they disappeared in some cases immediately, in others only quantitative or qualitative changes in the subjective noises presented themselves. Not unfrequently the patients related that they heard a clear ringing instead of the deep humming which they had been conscious of up to this, especially where hæmorrhage had taken place into the cavity of the drum. For the most part after a few days, with the resorption of the blood gradually setting in, the ringing disappeared, in a few cases with absence or decrease of the noises which had existed before, whilst in others these last came back in their former degree.

At first, for the sake of caution, I performed the operation at the patient's house, but as I never saw any painful reaction set in, I operated afterwards in the greater number of cases in my own consultation room. After cutting through the posterior fold I close the orifice of the meatus auditorius externus with charpie, and desire the patient to spend the rest of the day quietly at home. When this method has been followed I never saw a purulent inflammation set in. In one case only, in which the patient of his own accord injected water into the ear after the operation, a violent inflammation took place, which had, however, no further injurious results.

Since, as a matter of course, there is a solution of continuity connected with the operation, air sometimes hisses through the opening when the nose is strongly blown—a point to which the attention of anxious persons must be drawn, who are accustomed to look upon the division of the membrane of the drum as something unheard of. The edges of the wound generally heal up after 24 hours. The only thing about which patients usually complain for a short time longer is, that they are sensible of a slight pain in the ear upon blowing the nose and by eructations. After two, at the latest three, days, in order to maintain the membrane of the drum in its now relaxed condition, the systematic use of the air-douche may be recommenced without any danger of the puncture in the membrane of the drum bursting open again. In the greater number of cases in adults the experiment of Valsalva is sufficient for this purpose, all the more as the membrane of the drum, which is now much more flexible, is far easier to inflate, which both the patient himself feels, and which can be clearly confirmed by means of the ear speculum. As a matter of course, Politzer's method must be employed in the case of small children. It is necessary to make use of these injections of air for some weeks, and that, too, several times a day, and from time to time to repeat them, particularly where there

is at the same time an increased thickening of the membrane of the drum. If this does not take place, one may expect to see the membrane of the drum return sooner or later to its former state of abnormal tension. Then there is no help for it but to repeat the operation, and to enjoin on the patient the more frequent use of the air-douche.

The cases described up to this distinguished themselves in this way, that the membrane of the drum, which was free from adhesions, showed a relatively good mobility when the air-douche was employed, and with that an improvement in hearing set in.

I have performed the operation now also in those cases in which auscultation showed a perfectly free middle ear, and where the air-douche repeatedly used brought about neither objectively nor subjectively an essential change. These are the cases so frequently observable, which may be classed together under the name of *otitis media adhesiva* and those interesting conditions of the membrane of the drum can be numbered amongst them, in which we can clearly recognize adhesion of the middle or under division of the membrane of the drum to the labyrinthine wall of the cavity of the drum. If during examination by means of the aural speculum air is pressed into the cavity of the drum by Valsalva's experiment, it can be seen how the membrane of the drum, with injection of the vessels along the handle of the malleus,^a arches itself upwards with difficulty in the upper and posterior part, whilst the remaining part of the membrane shows no visible motion. The posterior fold of the membrane of the drum is apt in this case to be uncommonly strongly developed, and to smooth itself out under pressure of the air either very little or not at all.

In a quantity of such cases in which injection of air repeated for a long time brought about no essential improvement in hearing, a considerable and lasting improvement not unfrequently presented itself after cutting through the posterior fold, and these cases prove most clearly that the success of this operation is almost entirely to be referred to the relaxation of the upper section of the membrane of the drum. The after-treatment was the same as in the first described cases.

To conclude. I have also combined the cutting through of the posterior fold with paracentesis of the membrane of the drum in genuine catarrh of the cavity of the drum, where auscultation showed the characteristic rattling sound, and the aural speculum frequently permitted collections of secretions to be perceived by sufficient transparency of the membrane. Only in this case, after cutting through the fold, the cut must be

^a The redness of the membrane of the drum under the influence of Valsalva's experiment is of importance, because it shows us surely that the air really forces its way into the cavity of the drum during the experiment, and therefore the same gains a particular signification where there is absence of that motion of the membrane of the drum.

prolonged to about the middle of the membrane, in order to facilitate the escape of the not unfrequently very viscid and tenacious secretion. Although these cases do not, strictly speaking, belong to the present subject, and it has never been decided how much of the success is to be ascribed to the escape of the secretion, and how much to the cutting through of the posterior fold, still I must attribute a good part of the lasting improvement to this modified paracentesis. In a large number of the cases in which I formerly performed paracentesis of the membrane of the drum in order to let out the secretion, without, at the same time, cutting through the posterior fold, I saw such frequent relapses, rendering a repetition of the operation necessary, that I cannot possibly consider the non-appearance of the relapse in these cases a mere accident.

I will not weary the reader with a detailed publication of single cases, and will only remark, that I have performed the operation, up to this, 48 times in 45 cases. The results of the different cases I have put together in the following table:—

KIND OF CASE	Number of operations	Greatly improved	Little improved	Not at all improved
1. In cases without demonstrable adhesions, - - - -	14	7	7	0
2. In expressed Otitis media adhesiva, - - - -	27	5	11	11
3. In genuine catarrh of the cavity of the drum, at the same time letting out the secretion, -	7	6	1	0
Sum, - -	48	13	19	11

This shows, on the whole, a very good result, which appears all the more favourable, as the want of success was entirely observed in cases in which the function of hearing was so greatly impaired that a whisper was hardly, or not at all, understood in the immediate neighbourhood of the helix of the ear; so that, besides the described changes in the membrane of the drum, deeper derangements in the cavity of the drum, or in the labyrinth, must be supposed.

It must be particularly dwelt upon, that I have not observed, that in any single case the hearing was made worse; so that I cannot too urgently recommend this simple operation, in opposition to the doubtful treatment by injections of medicaments into the cavity of the drum.

As an appendix, it may be further mentioned that I have performed the operation, too, in cases of perforation of the membrane of the drum. My experience on this point is still too small to allow me to recommend the operation in general in these cases, too.

Selections from Foreign Periodicals.

Translated by GEORGE F. DUFFEY, M.D., Dub.; L.K.Q.C.P., Irel.

Antidote for Carbolic Acid.—M. Th. Huseman has recently published, in the *Pharm. Zeitschr. für Russland*, the results of a series of experiments made upon animals, in order to discover the fatal dose of the acid and its most convenient antidote, and has found that saccharate of lime furnished the most satisfactory counteracting results.—*Bull. de la Société de Méd. de Gand*, Feb., 1872.

Treatment of Traumatic Tetanus by Intramuscular Injections of Morphia at the exit of the Nerves.—Dr. Demarquay having lost many of the wounded during the late war from traumatic tetanus, adopted the following mode of treatment with success in two cases. Observing the great susceptibility of such individuals to cold, he placed these two tetanic patients in a room kept at a temperature of from 18° to 22° cent. (65° to 72° Fahr.), and four or five times in the 24 hours injected into each masseter, and also in to the muscles of the neck at each side of the vertebral column, a solution of morphia ($\frac{1}{50}$ th). If the wound which had been the cause of the tetanus was painful, he made an injection deep into the thickness of the muscles of the part near to the wound, and after a few hours repeated the injections, following the painful contractions wherever they showed themselves. By these means favourable results were rapidly produced, the muscles ceased to be painful, the patient could open his mouth and drink freely of a weak vinous lemonade or broth. In consequence of the temperature of the ward and the abundant drinks, the patients perspired freely.

The novelty of Dr. Demarquay's method consists in the injection being made into the substance of the muscles and as near as possible to the exit of the nerves; and although the paucity of his successful cases do not permit any definite deduction to be drawn from them, yet they are worthy of being brought to the notice of the medical world.—*Lo Sperimentale*, Feb., 1872, from *Rev. di Med. Chir. e terap.*, Jan.

New Mode of Administering Raw Meat.—M. Dunnesy (*Bulletin Sen. de Thérap.*, Jan. 15, 1872) has discovered, that by exposing the pulp of flesh to a current of dry air for a short time it becomes a friable mass, which, being powdered, is of a brown colour, of a feebly salt taste, almost inodorous, and represents four or five times its weight of fresh flesh, without the least change in its constitution. In this form it can be taken without repugnance, either between two slices of bread, or in broth, or it may be made into a biscuit.—*Lo Sperimentale*, Feb., 1872.



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MR BUTCHER ON LIGATURE OF THE ILIAC ARTERY FOR INGUINAL ANEURISM.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XII.—*On Ligature of the Iliac Artery for the Cure of Inguinal Aneurism; and on Excision of the Knee-Joint.* By RICHARD G. BUTCHER, M.R.I.A., M.D. (honoris causa), University of Dublin; University Lecturer on Operative Surgery, and Surgeon to Sir P. Dun's Hospital; Examiner on Operative and Practical Surgery in the University of Dublin; late Senior Surgeon to Mercer's Hospital, and Lecturer on Clinical Surgery; Ex-President of the Royal College of Surgeons in Ireland, &c.

IN the present communication I wish to draw the attention of the profession to two very important surgical operations. The first, ligature of the iliac artery for the cure of inguinal aneurism; the second, that of excision of the knee-joint. In the first operation an illustration is afforded of the successful application of the cord, its healthy separation, the healing of the wound, and the cure of the aneurism. However, by the injudicious conduct of the patient, a most serious complication was set up: inflammation of the sac of the aneurism, diffuse inflammation of the thigh, accompanied by the most alarming constitutional disturbance, and yet the patient was saved by operative surgery. In connexion with this part of the paper, I have figured the enormous size of the inguinal aneurism previous to operation, and beneath it the limb after being cured, showing the line of cicatrix where the iliac artery had been ligatured;

while the frontispiece to these pages gives an accurate and beautiful picture of the old man cured; the cicatrix where the artery was tied, and that, after the extensive wound in the thigh, required for the extrusion of the diseased and suppurating sac and its contents, as well as for the relaxation of the tensive inflammation of the limb. In the second operation, I have recorded another successful case of excision of the knee-joint. I have given illustrations of the portions of the diseased bones removed, separately and together; and also the bones united by osseous union, and in the direct axis of the limb. I have confirmed this fact by another remarkable example, which I have figured, as well as the portions of the carious bones cut out in the case. I have likewise given the picture of a man after being cured, who I operated on twenty years ago, and likewise a truthful representation from a photograph of his condition now—showing how well the limb has stood the test of rough usage and trial through so many years; the diseased bones cut out in this case have been accurately copied, and represented both separately and placed in apposition.

I.—*Enormous Inguinal Aneurism treated successfully by Ligature of the Iliac Artery, and the most serious Complications cured by Operative Surgery.*

Edward Neil, aged seventy-six years, admitted to Sir P. Dun's Hospital, January 8th, 1872, with an enormous aneurism filling up the entire inguinal region in the right thigh and extending above Poupart's ligament. The patient stated that he was a quarryman by occupation, that he laboured hard all his life, but was never confined a day to bed by sickness. Twelve months before the above date, when unloading some stones from a cart, one fell forcibly upon him, bruising the middle of the right thigh; for more than a fortnight the pain was very severe, and at first so troublesome that he had to give up work for several days. After the acute pain had passed away there remained in the stricken part a dull heavy weight for more than two months; but not severe enough to prevent his following, at the latter part of this time, his usual occupation. At the end of the third month after the accident, he perceived a small beating tumour at the groin, but could not distinctly affirm that this part was not also injured when the stone fell upon him; indeed he lent to the belief that it must have been, the stone was so large a size. Gradually and steadily the tumour began to enlarge, and

with persistent pain on the inner side of the thigh; the pain was never very severe at the groin, but the violent beating and throbbing of the part kept his thoughts constantly fixed upon it. During the long period of nine months, from the first week of which the patient noticed the "jumping" of the tumour, when only the size of a "wall-nut" until the date he applied to me, when the tumour assumed the size of a large melon, he daily exerted himself in bodily labour, and constantly carrying very heavy weights.

On the 6th of January, 1872, the patient consulted me at Sir P. Dun's Hospital; having heard the foregoing history, I made a very careful examination of the case. The man walked half-doubled with a very crippled gait into the consulting room, and at once attracted my immediate observation. On stripping him I perceived a large pulsating tumour in the right groin, in transverse measurement eight inches, filling up the entire inguinal region; in its vertical axis nine inches; raised above the surface in its most prominent part three inches; its lower edge was fusiform in the line of the femoral artery for two inches, while its upper border was curved convex upwards for an inch above Poupart's ligament. The circumference of the limb at the most prominent part of the tumour measured nineteen inches, while that of the sound thigh at a corresponding point was only fourteen inches. The integument over the tumour, its covering, was unaltered in colour, with the exception that some veins of magnitude coursed over the surface but were not channelled, simply superficial—some solid laminæ bounded the walls of the tumour, but by gentle, steady and equable pressure the swelling could be reduced more than two-thirds of its bulk—the pressure being taken away, the integument was rapidly lifted up again and the tumour regained its former size. On examination with the stethoscope, there was a loud bruit at the point of entrance of the artery into the dilatation, and also at its point of exit below, while there was only a diffused murmur within the tumour, and a loud thump given to the instrument from the column of blood thrown in. The leg was not swollen, yet there was slight œdema at either side of the tendo Achilles. A most searching examination was made as to the condition of the arterial system. The heart seemed healthy in its force and beat, and its second sound clear and normal. On the most careful stethoscopic application no roughness or ruffling could be detected in the thoracic arch—the pulse beat 78 in the minute, regular and with good volume. Now, as to a comparison of the circulation in the sound

and affected limb; the circulation in the posterior tibial and anterior tibial arteries of the affected limb was feeble, and as contrasted with these vessels in the sound one, somewhat deficient in force. The venous circulation was somewhat tardy in the affected limb, while in the sound one it was not changed from a healthy state; while the temperature of each remained the same. After considering the different points in reference to the management of this serious and most interesting case, I came to the conclusion that it was best to perform such an operation as would enable me to tie the external iliac artery high up near its origin, or, if necessary, the common iliac itself. The tumour, as I have before stated, extended so far above Poupart's ligament, that Cooper's operation was not at all applicable. Neither was it a case where pressure could be tried, it could not be brought to bear upon the upper part of the iliac artery; neither would any amount of pressure that could be made or borne on the abdominal aorta lessen the heave of the fluid contents of this large tumour. I may state now, that I was compelled to have recourse to the operation previous to the time I had intended, owing to the sudden and rapid enlargement and tension of the aneurism; I feared the sac might give way suddenly, and so probably render all attempts at saving life abortive. The patient was admitted to hospital on the evening of the 8th of January; on the 9th I had his small and large intestines well cleared out of all accumulated matter; early on the morning of the 10th of January an oil enema was administered, and all lodgments in the rectum cleared away, and at 10 o'clock the patient was brought into the operating theatre, placed under the influence of chloroform, and I proceeded to tie the iliac artery high up, after the following manner.—A word with regard to settling the patient on the operating table; the body was placed horizontal, the limbs extended, and the head comfortably supported; I believe this position better than the body somewhat raised and the limb on the affected side slightly flexed. I insist upon this former position, as affording greater facilities in the earlier steps of the operation, owing to the parts about to be divided being put upon the stretch. Standing on the right side of the patient, the first incision was commenced unusually high in this case (owing to the encroachment upwards of the tumour), fully two inches and a half above the spine of the ilium, and about an inch and three-quarters internal to this point, from the point where the knife was first laid on, it was carried with a slight inclination outwards and downwards to about an inch above

Poupart's ligament. By this sweep of the knife the skin, superficial fascia, and fat were all cut through, and the aponeurosis of the external oblique muscle exposed; a small incision through it at the lowest part of the wound allowed a director to be passed upwards beneath it, when the strained tendinous structure was divided with the knife to the same extent as the integument, the lower margins of the internal oblique and transversalis muscles were cautiously raised up with the point of the finger, and the director passed beneath and as high up as before, and cut throughout to the very summit of the wound; in these several incisions not a teaspoonful of blood was lost. I next came down to the fascia transversalis, which in this subject was unusually dense; I made a slight division of it where strongest, at its lowest part, and then easily separated it upwards with my finger; until this was done I could not get my finger under the peritoneum; but once effected, the peritoneum was easily lifted together with the intestines from the iliac fossa, and the psoas muscle resting on the brim of the pelvis reached; the tumour, ascending even somewhat higher than was at first supposed, requiring a more extensive separation of the membranes than was anticipated. The position and extent of the external incisions enabled me to get at the artery immediately after its origin; the artery was not on the psoas, it hung over the inner margin of the muscle, curved into the pelvis; the intestines and peritoneum being well held by broad copper spatulæ over to the left side, the thigh was flexed, and I was enabled to get at the artery and lift it upwards and outwards with its vein. I found the sub-peritoneal layer of fascia binding the vessels together very dense; after a little manipulation I passed the aneurism needle between both, from before and within outwards; the eye of the needle being clear I passed a strong silk ligature through it, and then drew back the instrument, leaving the cord beneath the artery, and scarcely disturbing it at all, or the vein, from their bed. The ligature was put upon the stretch and the artery pressed upon it, and immediately the beat of the tumour ceased; the finger was lifted up and again the tumour throbbed; once more the experiment was made with a like result, affording conclusive evidence, as to what might be expected when the cord was tied upon the artery. This condition being confirmed by my able assistants, Professor R. Smith, Drs. Bennett and Little, the artery was ligatured, the ligature being strained with considerable force; immediately the pulse of the tumour was cut off, its heave ceased, its volume

collapsed to less than two-thirds of its size; all sound ceased in it, the aneurism became silent. The wound was next dressed, its edges superficial and deep, were brought together, the needle armed with silver wire was made to traverse not only the skin but also the tendinous and muscular structures. There seemed so great a tendency to protrusion of the intestines and peritoneum, that eight stitches were required to retain the edges together; in addition to those sutures, straps of soap plaster at suitable distances were applied to support the parts; and a few folds of lint soaked in carbolic acid oil were laid over these, and a couple of pads outside all, and which were maintained in position with a considerable amount of pressure, by long wide straps of adhesive plaster; a few turns of a broad flannel bandage around the abdomen, completed the dressing. The limb was then enveloped in French wadding and lightly rolled with a flannel bandage from the toes to the groin. Quickly after the artery was ligatured the patient recovered consciousness, the chloroform having acted most favourably, and I did not consider it advisable to keep him under its influence during the dressing of the wound.

The patient was next conveyed from the operating theatre on a stretcher to his bed, and without the slightest change of position laid upon it; the sacking was easily withdrawn. He lay upon his back, his head and shoulders being slightly raised; the thigh was gently flexed and the leg elevated, both being supported on pillows and resting somewhat on the outside; warm jars and India-rubber tubing filled with hot water were applied to the feet and along the affected limb, so as to secure its temperature; a full opiate (40 drops Battley) in some hot brandy and water was then given.

3 p.m.—All appearance of shock has passed away. His pulse 100, full; complains of great pain about the knee, particularly on the outer and inner walls; I attribute this suffering to the enlargement or dilatation of the anastomosing vessels, and have frequently observed it in a most aggravated form, in cases of popliteal aneurism undergoing cure by pressure on the femoral artery. The artificial heat was carefully kept up, and there was very slight diminution of temperature in the affected limb—only two degrees when contrasted with the sound one. Ordered 30 drops of Battley with 25 of sweet spirits of nitre every third hour, and three ounces of brandy every third hour; a small cup of beef-tea occasionally.

9 p.m.—Temperature of limb as at last report, quite warm and

comfortable, with the exception of the pain about the knee; has had some sleep, and is quite cheerful.

January 11th, 10 a.m.—Slept well throughout the night; pulse 98, good volume and steady; took his nutriment, opium, and stimulants as directed; skin moist; passed water freely and in abundance; the temperature of the limb well sustained, only one degree lower than the sound one, as indicated by the thermometer; pain absent about the knee all the morning; he took some toast and tea for breakfast; to continue the beef-tea, brandy, and opium at the same intervals, every third hour.

3 p.m.—The patient was in a tranquil sleep, and awoke as I entered the ward; he had no pain as before complained of; pulse 90; passed water freely; temperature of limb the same as in the morning; has taken everything as ordered in the morning; to continue.

January 12th, 10 a.m.—Slept well throughout the night, and took his nourishment, opiates, and stimulants, as directed; at nine this morning eat some toast and tea for breakfast. The patient is very bright, and feels no pain whatever, but complains a little of the restraint by position; pulse 86, soft; skin moist. I dressed the wound for the first time this morning; on removal of bandage, pads, plaster, &c., its edges seemed to lie very evenly together; gentle pressure over the wound occasioned no pain, but forced up a quantity of watery fluid and imperfect pus, highly foetid, from proximity to the colon; this was soaked up with soft sponge as it escaped; the plasters, and pads, and bandage were re-adjusted as before, and all done without giving pain to the patient. The limb was next stripped; the tumour in the groin maintained much the same condition as after the operation; it was quite flattened and silent, no recurrent supply having reached it; temperature fully maintained to the very toes, and, by examination with the thermometer, strictly the same as in the sound limb; rolled the entire member in wadding with a flannel bandage as before, placed it in same position, flexed and supported upon pillows, with a hot jar to the sole of the foot; he passed water several times, and free from straining or pain; ordered to continue the opium stimulants and beef-tea every fourth hour.

3 p.m.—Has taken his nourishment with appetite; no pain; pulse the same as in the morning, 86, soft and compressible; skin soft; passed water abundantly; temperature of limb same as in the morning. To continue throughout the night opiates, stimulants,

and nutriment every fourth hour; position not changed; the limb lies slightly flexed at the groin and knee, resting on its outside, the leg being placed on a plane surface, and the foot raised about an inch above it; the limb was slightly flexed in this way to relax the artery and the tissues over the walls of the aneurismal sac, and the limb raised in the least degree so as not to embarrass the heart's action in sending blood through the anastomosing vessels for the due supply of the member; this small amount even of elevation being salutary towards favouring the returning blood, a most important point to pay attention to when the limb was struggling for life.

January 13th, 10 a.m.—Slept at intervals throughout the night, and took his nourishment as ordered; this morning took tea and toast with appetite. On examining him very carefully he complained of no pain; pulse 86, steady and full beat; urine passing freely; skin moist. On dressing the wound there was no pain in it or its vicinity; no redness, and the temperature of both limbs was the same. As stated before, the aneurismal tumour remains collapsed, and silent as to murmur from recurrent supply. Supported the limb by adjustment of cushions, as stated at last report; ordered to continue the opiates at intervals of four hours, also the brandy and nourishment.

3 p.m.—Slept nearly throughout the entire day, being partly narcotized; he partook freely, too, of nourishment and stimulants; to continue opiates, beef-tea, and brandy as before.

January 14th, 10 a.m.—The report this morning is most favourable in every respect. He slept soundly, and at stated times took food, stimulants, and opiates as ordered; suffers no pain; pulse 80; passes urine in abundance; skin moist over the trunk and extremities, and the temperature alike in both. He took his breakfast with relish; ordered opiates, stimulants, and beef-tea as on yesterday. The opiates I insist upon, although the man is half narcotized; as to its powerful influence I mainly attribute the absence of unhealthy inflammation, and the protection afforded to the peritoneum from being engaged.

3 p.m.—Feels quite happy after seeing his family and friends, now for the first time since the operation. He suffers no pain in the wound or limb, but complains of a troublesome cough with tenacious expectoration. Ordered the following expectorant and sedative mixture:—

℞. Liq. Hoffman ʒi.
 Tinct. opii. camph. ʒiii.
 Spirit amm. aromat. ʒii.
 Tinct. scillss ʒi.
 Aq. lauro cerasi ʒii.
 Syrup ʒss.
 Aquæ ad ʒviii. fiat mistura.
 Capeat cochlearea ampla tertiis horis.

To continue the opiates and stimulants throughout the night, and beef-tea at intervals.

January 15th.—Slept quietly at night; pulse 86; temperature of body natural, with slight moisture; took all his nourishment during the night, and eat with appetite some toast and tea for breakfast. Dressed the wound, which looks very well; reddish at edges; with the slightest pressure a little matter was pressed out; re-applied straps, carbolic acid oil dressing, pads and bandages as before; to continue opium, brandy, and beef-tea at intervals of three or four hours; urine passed copiously and not high coloured; tongue cleaning.

3 p.m.—The patient had a slight rigor in the early part of the day, but it was quickly checked by the administration of some hot brandy and water with opium; pulse same as in the morning, 84; skin moist; has taken all his nutriment. To continue brandy, whiskey, beef-tea, and 30 drops of laudanum as before, every third or fourth hour.

January 16th, 10 a.m.—No repetition of the shivering; pulse 88; skin soft; cough gone; passed water freely; has eaten his breakfast with appetite, and taken all his opiates, stimulants, and nourishment throughout the night. Dressed the wound; surface of edges well vitalized; no pain on gentle pressure over iliac fossa, while at the same time some pus escaped, very offensive in character; re-applied all dressings as before; limb free from pain; tumour slowly diminishing; quite silent; natural temperature preserved to the very toes. To have some arrow-root and brandy, and to continue opiates, stimulants, and food as before.

January 17th, 10 a.m.—Had refreshing sleep at a time and for long periods; took his opiates, stimulants, and support at regular intervals; pulse very soft with good volume, 84; tongue moist and nearly clean. Dressed the wound, which looks very healthy; pressure with a sponge over iliac region gives no pain, yet wells up a small quantity of healthy pus. Re-adjusted adhesive straps, pads, &c.,

and removed the flannel bandage which supported the abdomen; on all former dressings it was slit up with scissors, and, after the pads, &c., were laid down, the cut edges were stitched together again; this precaution was adopted to prevent the slightest motion or effort of the patient being made, for as yet he never changed his position from off of his back. A fresh piece of flannel, doubled to a suitable width, was gently passed beneath the patient, and pinned in front towards the left side, giving suitable support to the pads near the wound as well as to the entire abdomen; the man's linen was now also for the first time changed, and without ever allowing him to stir from the recumbent position; ordered to continue the stimulants, opium, and nourishment at intervals of three and four hours. The opium has acted most admirably in allaying pain and irritation, in warding off peritoneal inflammation, and keeping the bowels quiet for the entire week which has now passed since the operation; and the belly is flat, without tympanitis.

January 18th, 10 a.m.—The patient eat his breakfast with appetite; he slept throughout the night, only waking to take his nourishment and opium; pulse 80, soft; tongue clean; urine abundant; skin quite natural, and temperature of both limbs alike. Dressed the wound, which is suppurating healthily—some shreds of deadened cellular tissue and fibrous structure at the margins of the wound. Removed the silver stitches, some of which cut their way out, and others which maintain edges still in apposition. No pain on making gentle pressure with a sponge from within outwards over the iliac fossa so as to press out any discharge lodged there. Readjusted straps, pads, and flannel bandages, so as to support all together as well as the walls of the abdomen, as on yesterday—to continue beef-tea, brandy, and opium at the same intervals, every third or fourth hour.

January 19th, 10 a.m.—Slept well and feels greatly refreshed; took all nutriment, stimulants, and opium as ordered; pulse 80, soft and good volume; temperature of body and limbs natural; urine abundant. Dressed the wound, removing the last of the silver sutures, pressed out discharge very gently, and re-applied all the dressings as before.

3 p.m.—Feels most comfortable. Now, for the first time since the operation, changed all the sheeting on the bed; slipped them under the patient, without the least effort on his part, so guarded was I to preserve the ligature from any disturbance.

January 20th, 10 a.m.—Had quiet and refreshing sleep; took

all his nourishment as ordered; pulse 80, with steady beat and full; urine passed freely; temperature of body and limbs natural. Dressed the wound, which looks healthy in every way; no pain on gentle pressure being made with a sponge over the iliac region for the purpose of dislodging any accumulated purulent matter.

January 21st.—Going on most favourably; he slept well all night; bowels opened twice and of their own accord, this being the first time since the operation, now eleven days; pulse 80, good beat and soft; tongue clean; asked for an egg for his breakfast which he eat with appetite. The wound looks very healthy, and is nearly all healed. The shreds of deadened tissue pressed out with the sponge, it being used very gently, the discharge is healthy in consistence and colour, but still exceedingly foetid from the proximity of the bowel; brought the edges of the wound readily in apposition with adhesive straps. The upper part is healed, and the ligature rests quietly between its lips, at the junction of its upper and middle thirds; lint soaked in carbolic acid oil, and pads supported with straps and flannel bandages as before. The limb also rolled in flannel from the toes to the groin; to continue still his opium, stimulants, and nourishment at the same intervals of time

3 p.m.—No complaint since morning.

January 22nd, 10 a.m.—The report of the patient's condition is most favourable in every way. Dressed the wound, which is granulating most healthily; no tenderness whatever in its vicinity, and all deadened shreds of cellular tissue removed. Reapplied straps, pads, and flannel bandages, support as before. The aneurismal tumour is steadily diminishing, and the temperature and feeling in the affected limb the same as in the sound one; to continue support, stimulants, and opium as before, every third and fourth hour.

January 23rd, 10 a.m.—Patient slept well all night and took his breakfast with relish; pulse 78, soft, good volume; tongue clean; urine passed abundantly. Wound dressed as on yesterday, it looks quite clean; and now that granulations are springing up in all directions and chambering off, as it were the bowel, the discharge is not at all as offensive as throughout the earlier stages of the case, and it is healthy in colour and consistence. The ligature lies quiet in the wound; to continue nourishment, opiates, and stimulants as before.

January 24th, 10 a.m.—The patient feels quite refreshed after a night's sound sleep, and eat a very hearty breakfast. The wound is rapidly closing, and granulations of a healthy character every-

where throughout it; above and below it is healed, and open at the junction of its upper and middle thirds, through which the ligature protrudes; dressed and supported the wound with adhesive straps, lint soaked in carbolic oil, pads and flannel roller as before; to continue stimulants, nourishment, and opiates at the same intervals as before.

January 25th, 10 a.m.—The patient had a very quiet night, with refreshing sleep. No pain in wound or limb, and, as on yesterday, the amount of discharge was merely sufficient to moisten the surface. As the time was closely drawing nigh for the separation of the ligature, I considered it better not to disturb the dressings.

January 26th, 10 a.m.—Everything going on most favourably; dressed the wound, which looks most healthy; a small amount of discharge on further pressure; re-dressed as before; to continue nourishment, opiates, and stimulants.

January 27th, 10 a.m.—Slept nearly the entire night, waking only to take nourishment; no pain; pulse natural; urine abundant; bowels confined; once moved only since the operation, and that was on the 20th, eleven days after the operation, and from that date up to the present (seven days) they have not been acted upon; wound so easy and so little discharge from it, considered it prudent to leave all quiet; to continue support and opiates at the same intervals of three and four hours as before.

January 28th.—All going on most favourably; wound not disturbed.

January 29th.—This, the twenty-first day since the operation, and the wound nearly all healed; no matter pressed out by the sponge; the ligature rests quietly in its bed; not much secretion about it; no pain of any kind; re-dressed the wound; to continue opiates and food as before.

January 30th.—No change; wound looks well, but little discharge; ligature undisturbed.

January 31st.—No change since last report.

February 1st.—Sleeps, eats, and takes his medicine and stimulants as before; wound nearly closed; ligature not meddled with.

February 2nd.—As at last report, all going on favourably, the twenty-fourth day since the operation; the ligature lies quiet in its position.

February 4th.—No change since last report; ligature undetached; wound all but healed; about a teaspoonful of discharge gently pressed out from the track of the cord.

February 7th.—Ligature not detached. In every respect the case is progressing most favourably. The patient's bowels were largely moved twice to-day of their own accord. This is only the second time they were acted on since the operation. To continue opiates and nourishment.

February 13th.—The case has favourably gone on up to this date; one of the most important of all, the casting off of the ligature. When dressing the wound, I made the slightest traction on the cord, when it came away thirty-five days after its application, and without a trace of blood after it; dressed and supported the wound as before. The ligature had been well tied, and was perfect in its integrity, and holding the external coat of the artery in its loop; ordered to lessen the amount of opium; one draught at night.

February 14th.—Scarcely any discharge from the track through which the ligature passed on yesterday, and the entire wound nearly healed. The tumour is rapidly reducing in bulk. What remains is quite solidified. The circulation and temperature of the limb is perfect, and all the unpleasant crampy sensations have for a long time left it.

February 16th.—Only a few drops of discharge from the track which the ligature left; no tenderness or pain of any kind. Since the opium has been stopped on the 13th, with the exception of the night draught, the bowels have been naturally moved every day or every second, and twice this morning, relieving all the fulness and distension of the lower part of the abdomen; dressed wound as before.

March 21st.—Several days have elapsed since last report, and still there are a few drops of healthy pus from the wound, not increased by pressure with a sponge over the iliac fossa or its vicinity.

March 28th.—At this date all the difficulties and dangers of the operation were overcome; the ligature safely away; the wound perfectly healed from its deepest part to the surface; the aneurismal tumour solidified, and undergoing rapid diminution by absorption. The patient could flex and extend both the leg and thigh without the slightest pain, the joints only being a little stiffened; the temperature and sensibility of the limb were at the same height, and as perfect as in the sound one. The patient was restricted still to bed, the limb being supported on pillows and roller from the toes to the groin with a flannel bandage, gentle pressure being made

over the tumour as it was passed upwards to encircle the abdomen and give support to its enfeebled wall on the right side. Up to this date everything had gone on well, and surgery had been triumphant in saving the man's life. However, by the indiscretion of the patient himself, in a short time his life was brought into jeopardy. Up to the middle of April (the 14th) he bore with steadiness the restrictions imposed upon him—confinement to bed, rest in the semi-horizontal position, and quietude of the limb. At this time the patient's whole condition was greatly improved; he was strong, put up a great deal of flesh, and was in excellent spirits. The aneurismal tumour had considerably diminished, and there was an entire absence of pain or uneasiness in the affected limb, and its temperature and sensibility were the same as in the sound one, and its motions of flexion and extension were quite perfect.

On the 25th of April the patient began to complain of weight and uneasiness in the tumour, and on examination I perceived there was some œdema of the thigh beyond its boundaries, there was also an increase of temperature. Together with these changes there was considerable constitutional disturbance; he felt hot and burning the evening before; refused all food, and vomited frequently; he had no sleep. I was astonished at the suddenness of this change, and, after some difficulty, owing to prevarication, made out the cause. For several days prior, the man was in the habit, after I left the hospital, of getting on his clothes and walking about in the garden for some hours together. He then admitted that after doing so on the third day he experienced an uncomfortable tightness in the limb; this sensation was relieved after going back to bed, and taking rest. Every day that he went out, from this time up to the date of this invasion of fever, he suffered more or less in the tumour and the limb; and towards the end of this period, though he sometimes suffered acutely, yet he was afraid to complain, and was in the habit himself of adjusting the flannel bandage, and absolutely concealing the mischief which he had originated by his own indiscretion.

The case now presented a most alarming aspect; rapidly the constitutional symptoms assumed the lowest type; the pulse was quick—125, very feeble, and sometimes intermitting; the tongue was dry, brown, and hard; the eyes suffused; the features pinched and shrunk; the skin dry and burning; the urine secreted in very small quantity, scanty, and high coloured. The stomach was,

after some time, quieted by repeated doses of hydrocyanic acid, with creosote and iced champagne, while the integument over this region was vesicated, the cuticle removed, and the raw surface sprinkled over with morphia. Brandy had to be given in large and repeated quantities to support and steady the heart's action, and strong beef-tea and chicken jelly for nourishment. The limb was evenly rolled in flannel as far as the knee, while all the swollen thigh was wrapped in flannels wrung out of hot opiate stupes, and enveloped in oiled silk; at the same time the limb was elevated to a considerable height, so as to favour the returning blood. By these means, the burning tensive pain was partly lulled; opium had to be given in large doses, in conjunction with stimulants, every third hour, and so at least modified rest was procured. This treatment, local and constitutional, was steadily persevered in for four days.

On the 3rd of May I found the constitutional symptoms were, in some respects, relieved, yet the local changes were far more alarming. The stomach had been quieted; light nourishment could be retained, and the abundant stimulants and opium taken sustained the pulse and modified pain. On examination of the thigh, it was fully twice the bulk of the sound one. The surface, particularly over the tumour, presented a purple reddish hue, and, on pressure, which created intense pain, a kind of boggy, imperfect fluctuation was communicated to the hand. It was quite clear now what had taken place: acute inflammation of a diffuse character had been set up in the sac, with imperfect suppuration. I decided on freeing the fascia, opening the sac, and turning out the entire contents. Ligatures, tenaculæ, broad curved spatulæ, and knives, being prepared, so as at once to arrest hæmorrhage, should it occur either by direct division of vessels during the operation, or from some vessel yielding a recurrent supply to the sac. An incision was made from about the centre of Poupart's ligament, extending downwards for about six inches over the most prominent part of the tumour, dividing the integuments, superficial and deep fasciæ. A director was passed for two inches lower down, beneath the fascia lata, and a straight, long bistuory was conveyed upon it; its edge then turned forwards, and the fascia divided by the withdrawal of the instrument, the integument not being cut. I have frequently drawn attention to the advantages arising by this subcutaneous method of cutting short, tensive inflammation of fascia. The knife was then carried through the anterior wall of the tumour, to the

same extent as the first incision, and immediately on its division a large quantity of grumous blood, broken up lymph, and imperfect pus gushed out, following the track of the knife. I next, with my fingers, turned out a quantity of solid coagula, of lymph and blood, and dressed the extensive cavity with lint soaked in oil, having previously brushed the entire surface over with a strong solution of chloride of zinc (twenty grains to the ounce). It was a fortunate occurrence that no arterial blood flowed after these extensive incisions, and the manipulation required to clear out the part of offensive matters. The leg was rolled in flannel bandages from the toes upwards, and the thigh likewise so supported, the bandages being made to cross so as to approximate gently the gaping parts, yet not to cover the wound. A large piece of flannel, wrung out of boiling water, was laid over the entire front and sides of the thigh, and covered with a sheet of oiled silk. This application was most soothing, and afforded much comfort to the patient. The limb was slightly flexed, and then steadily supported on pillows; heated jars were applied to the feet, and some hot brandy and water, with a full opiate, given. The shock which the patient sustained was soon rallied from, and a severe rigor which threatened, likewise cut short and averted.

3 o'clock p.m.—The patient has rallied well from the shock; pulse 100; had sleep for a couple of hours, which greatly refreshed him; limb lies quiet and free from pain; opiates, stimulants, and nourishment every three or four hours.

May 4th.—On the whole he is reported to have had a quiet night, some steady sleep. Indeed I perceive a marked change in the expression of the patient's face; it has lost a great deal of the dragged and haggard look; his pulse has come down to 98; the renal secretion is increased, and the skin has lost a great deal of its burning heat; by day the stupes are regularly changed every third hour; and at night when the patient awakens; to continue opiates, sedatives and beef-tea, chicken jelly, &c.

May 6th.—The patient's constitutional symptoms have greatly improved; his pulse down to 90, and with good volume, regular; tongue cleaning and getting moist; the man's expression is very cheerful, and he now speaks hopefully of getting well. I removed all the dressings from the limb, cautiously withdrawing the long strips of oiled lint which were placed in the wound, they readily came away; the large loose flaps were evenly supported from behind forwards, and a considerable amount of unhealthy discoloured pus



Drawings taken from Casts before and after Operation.

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MR BUTCHER ON LIGATURE OF THE ILIAC ARTERY FOR INGUINAL ANEURISM.

and serum pressed out. All this was done very gently, the surfaces were again brushed over with the chloride of zinc solution, and the part then dressed and supported as before. There was but little pain complained of during even this the first dressing; to continue support, opiates, and stimulants abundantly.

After a similar manner the wound was treated up to May 10th, when its aspect was greatly changed for the better, and required another modification of dressing; at this time the discharge was very moderate in quantity and had become quite healthy in character; the loose flaps and integuments had recovered their contractile power, and were, in some places, adherent to the surface beneath. The wound, which had been fully six inches in length, was considerably shortened owing to the retraction of all the tissues; pads were now laid along the inner side of the thigh, and likewise on its outer aspect; these were drawn gently towards each other by broad straps of adhesive plaster; not to touch each other, however, but to give an equal pressure from the circumference of the large cavity towards the wound, and so press all secretion in this direction for escape, the edges of the wound not being brought together, it being bridged over by the plaster passing from one compress to the other, and thus afforded an unobstructed drain.

May 13th.—A similar mode of dressing to that described in last report was continued up to this date, and now the flaps are all adherent, the limb is perfectly free from pain, and on pressure no discharge wells up; it is consolidated throughout. The edges of the wound are drawn together with adhesive plaster, and the thigh and leg rolled as before. The patient has gained considerable health and strength since last report. The large quantity of stimulants and opiates has been diminished, and he partakes every day of solid food.

May 25th.—The wound is now healed, and bears being handled with impunity; he is able again to flex and extend the leg and thigh without uneasiness. The whole aspect of the man is changed in a most remarkable way. The anxious, haggard expression which he had on admission to hospital, and again when the diffuse inflammation attacked the thigh, is altogether gone; he has put up flesh in a rapid manner. At this time I took an accurate cast of the abdomen and thighs down to the knees, and the drawing from it shows well the increased bulk of the limb, the position of the wounds—the one for ligaturing the artery, and that for liberating the fascia of the thigh and evacuating its disorganized

contents. It contrasts well with the drawing beside it, copied with great accuracy from a cast which I took from the man before the operation. The tumour is well delineated in all its aspects, and the emaciated condition of the limb speaks forcibly of his weakened state at this time. (See Plate II., Figs. 1 and 2.)

The frontispiece to this paper has been beautifully lithographed by Mr. Forster, from a fine photograph taken by Mr. Lesage from the patient, a month after he had been walking about quite well. It will be seen that the man stands quite erect, and from this position the abdomen is more prominent than the representation in the cast taken in the horizontal position; also, for a like reason, the cicatrix in the abdomen appears nearer to the lip of the ilium in the figure copied from the photograph than it does in that taken from the plaster cast.

The daily account which I considered it right to give of this most important case may appear tedious to some, but I cannot regret having done so. From the very first the aspect of the case was alarming, considering the advanced age of the man, his emaciated condition, the enormous size of the tumour, its extension above Poupart's ligament, and its almost entirely fluid contents. Again, it was essential to dwell upon the many changes made in the local management of this case immediately after the operation, during the long time of the detention of the ligature, and after the separation of the cord; so far may be considered as the first part of the case; well, then, the secondary or after part of the case surely affords one of the most instructive lessons in practical surgery, when, by the man's recklessness, his life was again imperilled, yet by the boldness of the measures adopted his life was secured, and his limb preserved in every respect as perfect as the other. The extensive division of the fascia of the thigh, and the laying open of the entire extent of the tumour; the turning out of its contents and all decomposed, pent up extravasated matter, required special notice, as well as the various modes of dressing the wound, as put in practice from the first brushing over of the entire exposed surface with the strong chloride of zinc solution, to the last application of straps, pads, and bandages, which, brought together, supported and healed its edges. Finally, it was essential to give the daily account of his constitutional management, in order to show the large quantities of stimulants, opiates, and nutriment required in so serious a case, and which were exhibited with so much advantage—all conspiring to sustain nervous power; to calm and allay irritation;

FIG 1.

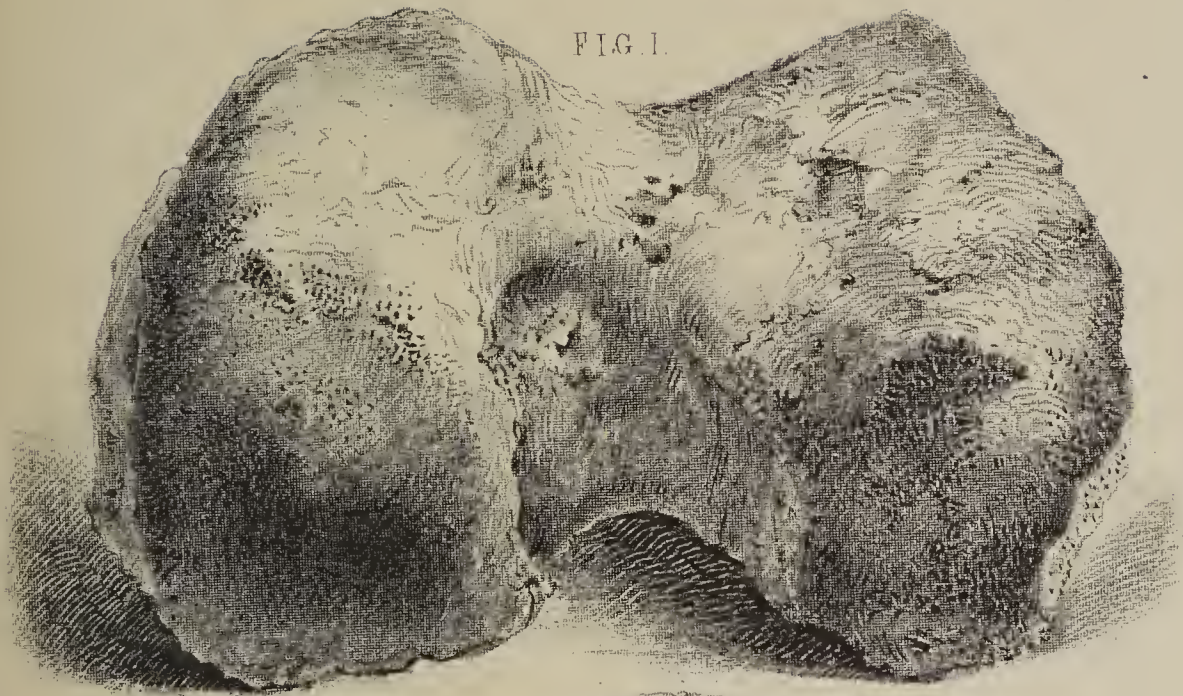


FIG 2

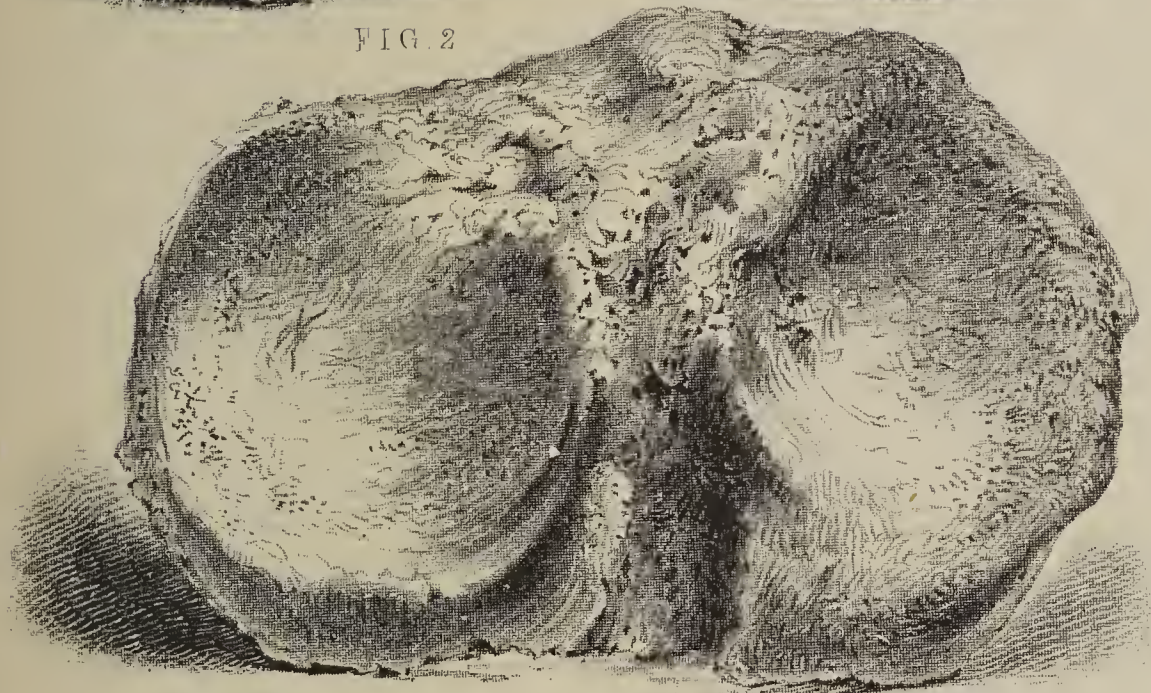
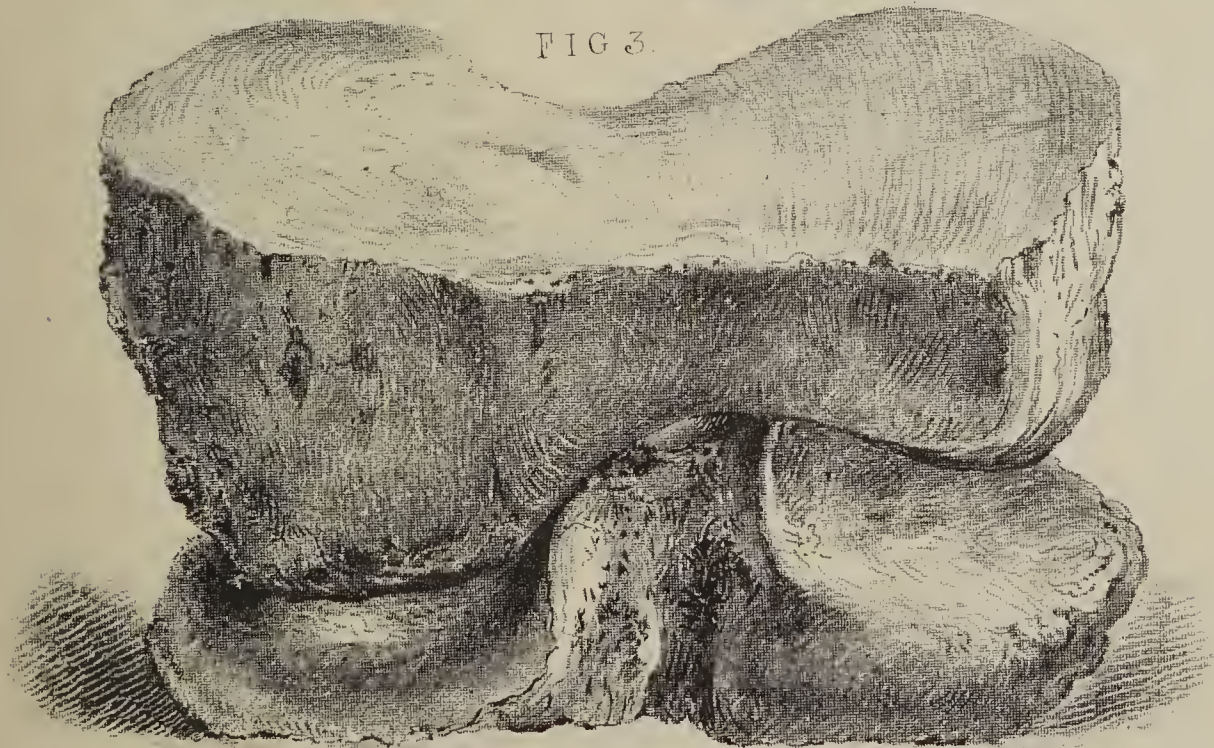


FIG 3.



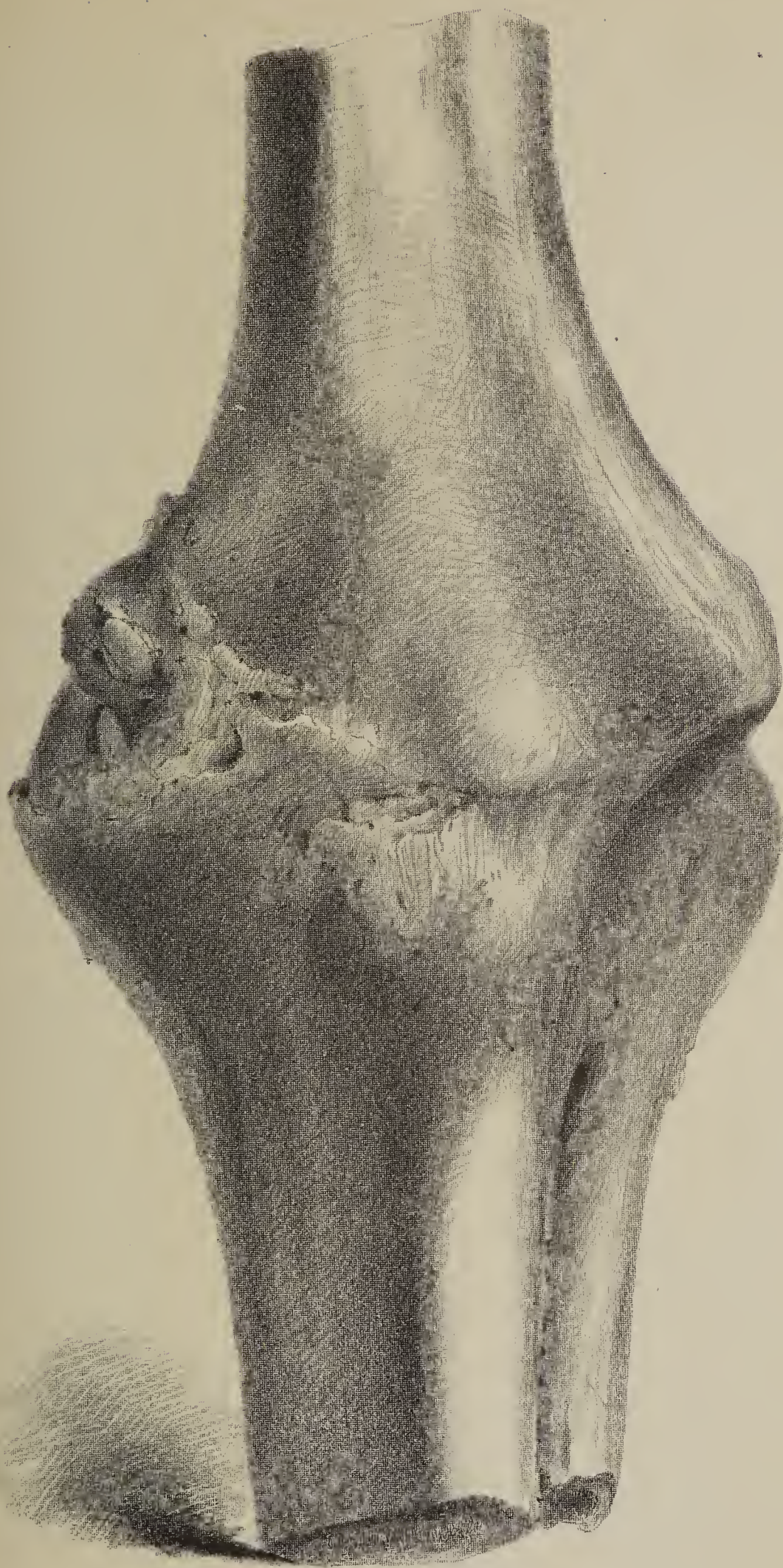
to sustain the heart's action; to afford that recuperative power manifested in the local changes as described, and so essential for recovery.

II.—*On Excision of the Knee-Joint; with the History of another successful Case after the Operation; also Examples of the Bones solidly united, and in the direct Axis of the Limb; with Illustrations of a Man operated on twenty years ago, and of his condition now, the limb remaining as perfect throughout this long period as when he was dismissed from the Hospital.*

Having recently performed several operations for resection of joints, in Sir P. Dun's Hospital, I shall in the present paper allude to the subject of excision of the knee, as it will afford me an opportunity of again drawing attention to this admirable operation, the advantages of which I repeatedly wrote about nearly twenty years ago, and illustrated by several cases successfully cured.

William Smith, aged 26 years, was admitted into Sir. P. Dun's Hospital with incurable disease of the left knee-joint, April 28th, 1869. His history runs as follows:—Two years before the above date he fell from a car, being thrown violently off, and suffered some contusions; the left knee in particular was badly bruised and twisted. After this accident he was confined to bed for several days, the knee-joint being attacked by acute inflammation; the usual remedies, leeching, stuping and rest in the horizontal position, were had recourse to, and the severe pain subsided; at the expiration of about three weeks he was able to go about, with the assistance of a stick. Six months passed by, when he again met with another injury, and the knee-joint became inflamed again; he sought relief in an hospital, and was confined there for two months before he would be allowed to move about; on his return home he had to remain quiet for several weeks before the limb was sufficiently strong to resume work; at several short intervals he had to lie up for a few days at a time, until four months before his admission to hospital at the above time. During the latter four months he suffered most acutely; the spasms and jerking of the limb preventing sleep altogether, the joint becoming greatly swollen, and most sensitive to the touch; ultimately a large abscess formed to the external side of it, burrowed backwards, and burst; the escape of matter was followed by some relief from pain for a time, yet the man became much weaker, and lost flesh rapidly;

the spasms of the limb and the pain in the joint continuing, and his constitutional state gradually becoming worse, he placed himself under my care. The following was his state at this time, just before operation:—The patient was greatly emaciated, with a pulse never under 120; his sleep was constantly interfered with by jerking and spasms of the muscles of the affected limb; his tongue was red, and indicative of great constitutional irritation; he had but little appetite, and constantly rejected his food; he felt hot and burning towards the close of day, and very frequently perspired freely towards morning—in short, irritative fever was verging fast into hectic. The local changes were well marked on the affected limb; the thigh and leg were emaciated, the former in the most marked degree, as contrasted with the sound one; the entire joint presented somewhat a globular form from the thickening of the structures, and deposition of new material on the external and internal walls of the joint; the hollow at either side of the patella was obliterated, owing to a similar change, while the popliteal space was considerably encroached upon by thickening of the posterior wall of the joint and morbid deposition in this region; the patella was not very prominent, pressure upon it created great pain within the joint; pressure around the articular margin of the tibia and femur gave intense pain, whilst pressure of the tibia upwards against the femur, either steadily or by a smart blow on the heel, produced a similar result. On seizing the thigh in one hand and the leg in the other, and moving them in contrary directions, considerable motion was allowed between the ends of the bones, proving clearly the disintegration of the structures within the joint, and the destruction of the crucial ligaments. Indeed this conclusion was arrived at without the test just mentioned being applied, for it was evident on handling the anterior surface and articulating edge of the tibia, that it had receded further back considerably from the condyles of the femur. From a consideration of all the circumstances bearing on the case, both local and constitutional, the opinion I arrived at was, in order to save life, the source of irritation must be removed. Then, the question settled itself into—what operation was most suitable to the case? Considering the age of the patient, and the limited extent to which disease had attacked the bones entering into the joint, their articular surfaces being alone implicated, I had no hesitation in advising excision of the joint in preference to amputation of the thigh; the patient's entire feelings centred in this conservative measure, and the



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MR BUTCHER ON EXCISION OF THE KNEE JOINT
From various union of the bones

successes which I had obtained in several cases made me look with confidence to the result. A very careful stethoscopic examination was made of the man's chest, and the lungs, heart, and great vessels pronounced healthy. On the 24th of April I operated after the following manner:—

The patient being placed upon the operating table, he was quickly brought under the influence of chloroform, and then gently drawn down towards the end of the table. Standing on the left side of the table, an incision was made fully three inches and a half long on the inner side of the joint, the knife being laid on about an inch below the articular surface of the tibia, and carried upwards above the inner condyle of the femur; a similar incision was made rapidly upon the outside of the joint from over the head of the fibula, and carried upwards to a similar extent on the external condyle; thus, the two lateral incisions lay as it were on a level with the posterior wall of the joint, and were carried down to the bones; the third incision—the completion of the H—was rapidly made from within outwards, passing beneath the lower border of the patella; the patella was quickly liberated by a few sweeps of the knife from the upper flap; the limb being now flexed, the thigh slightly on the pelvis, and the leg fully upon the thigh, the extensive destruction of alar and crucial ligaments, together with the inter-articular cartilages and cartilages of incrustation, were at once revealed; on these changes I shall speak more minutely after describing the further steps of the operation. Some tense bands and shreds of the internal and external lateral ligaments had to be divided to attain the full flexion of the leg which I required to satisfactorily get at the posterior wall of the joint; this fibrous structure, strengthened by the expansion of the semi-membraneous muscle, I detached with the knife from the edge of the tibia, only to about the eighth of an inch in depth, and then forced down the fibrous structure from the tibia to the required extent—about half an inch—and so, in a similar manner, liberated it from the femur, without encroaching at all on the popliteal space; thus, then, the posterior wall of the joint was left in perfect tact, though detached from the extremities of the bones, and the lateral incisions lay on either side of it as drains for the escape of exuded fluids that must be in front of it; the fine blade of Butcher's saw was then applied to the head of the tibia, and a slice about three quarters of an inch thick, removed—cutting from behind forward; the saw was then applied in a similar manner behind the condyle

of the femur, and the section completed forward, removing fully two inches of the bone; both sections revealed healthy cancellated structure, and on being applied to each other, the surfaces lay accurately in contact. The disorganized and thickened structures round the joint were clipped away, the flaps thinned but not curtailed in length. The hæmorrhage was very trifling; two small vessels were ligatured in the outward wound. The patient was next drawn well up upon the table, and the box which I use in these cases being placed beneath the limb, the padding was accurately adjusted so as to give full support to the popliteal space, to receive accurately the calf of the leg, to maintain forward the tendo Achilles and the heel, so that the limb should be steadily sustained, from one end to the other, as the normal one rested on the bed; during this time the thigh was kept well pressed back by an assistant, and prevented from starting forward. The wound was next carefully sponged, and each little coagula picked away, until the surfaces of the flaps were rendered entirely clear from blood; the upper and lower were brought in contact, and held so in their transverse relation by four points of silver wire sutures; the lateral incisions were also drawn together by two points above and below the line of section of the bones; on either side of the limb there was no tensive strain upon them by this adjustment corresponding to the line of section of the bones; there was a free egress for any secreted fluids within; and this drain, if I may use the term, lay exactly in a transverse line with the posterior wall of the joint where stripped from the excised bones. The internal side of the box was next lifted up, the padding being arranged so as to give natural support, that is, filling up all spaces, particularly below the knee, and again below the calf to the internal side of the foot. The foot was maintained at nearly a right angle with the leg, its normal relation. The internal side of the box, so padded, so applied, was thus held strictly vertical, and then the external side of the box was elevated, and with a similar exactitude, padded and adjusted to the outer side of the limb, great care being taken that the position of the adjustment of the cut bones should be sustained on the outside, and no lateral displacement permitted; the foot-board, padded, was next placed in the grooves for its reception, keeping well pressed up the foot and leg, the latter steadily against the femur. The anterior splint, well padded, was then applied in front of the femur from the groin to about two inches beyond its end, taking the place of the hands of

FIG. 1

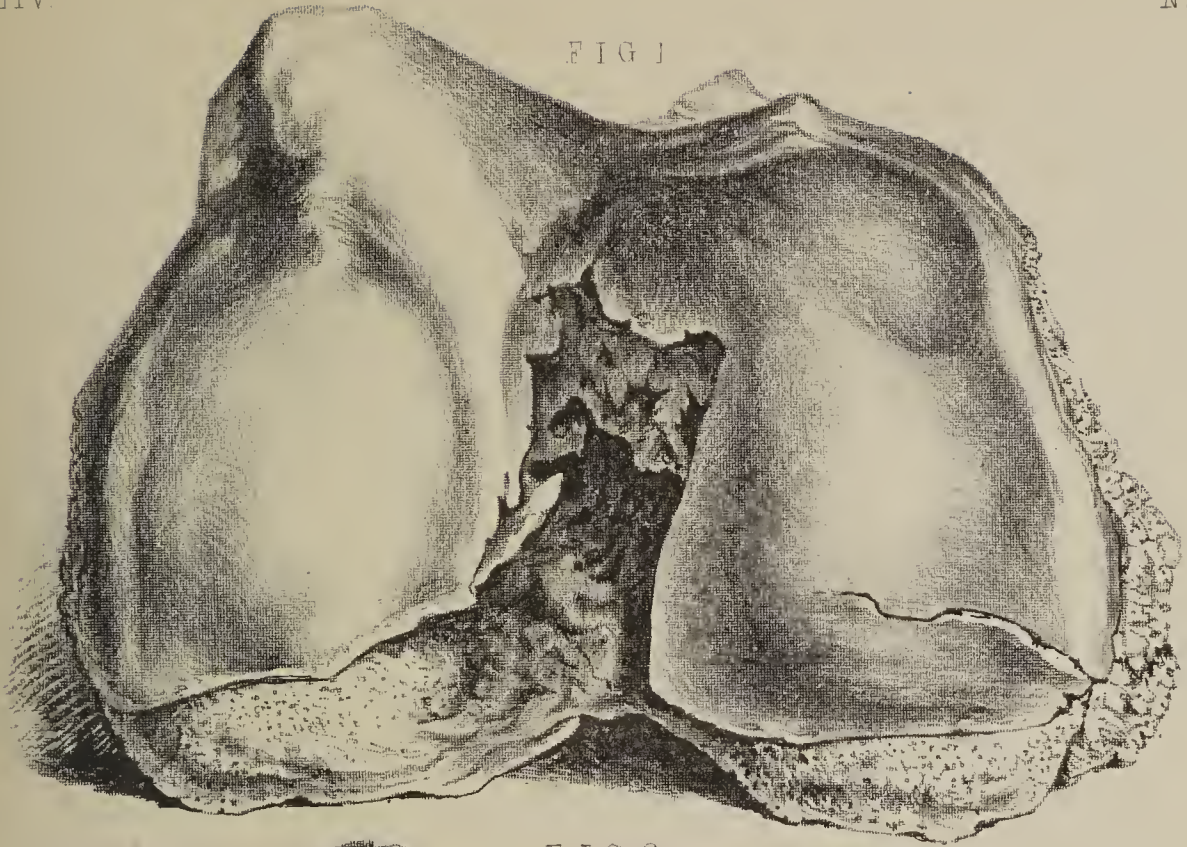


FIG. 2

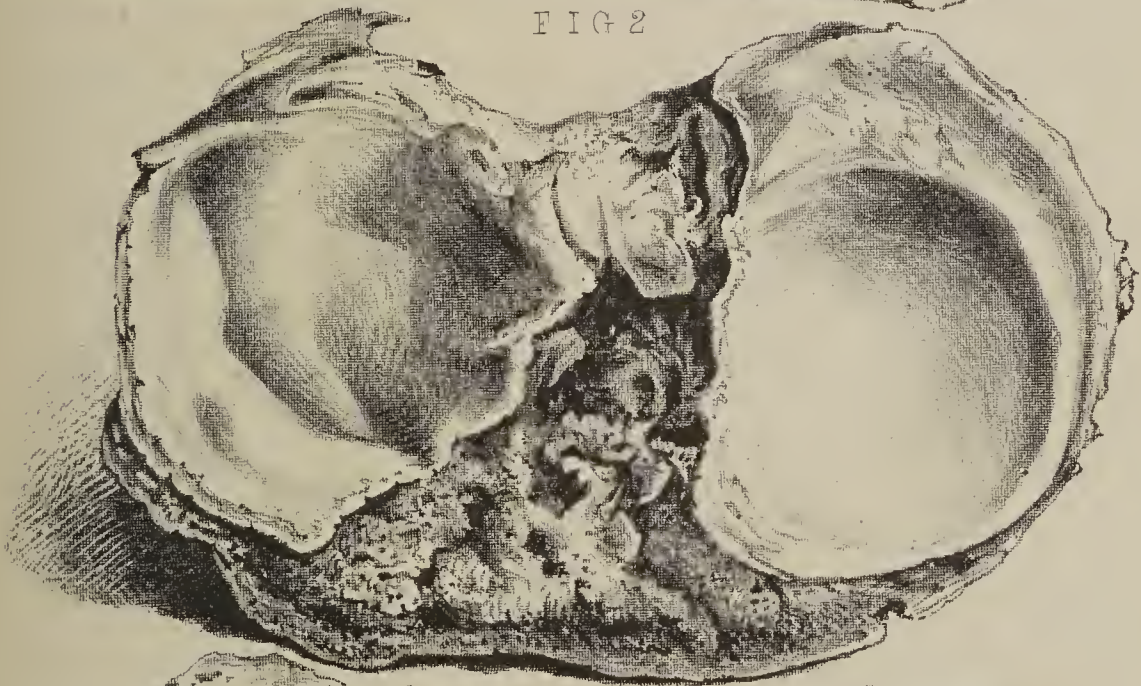


FIG. 3

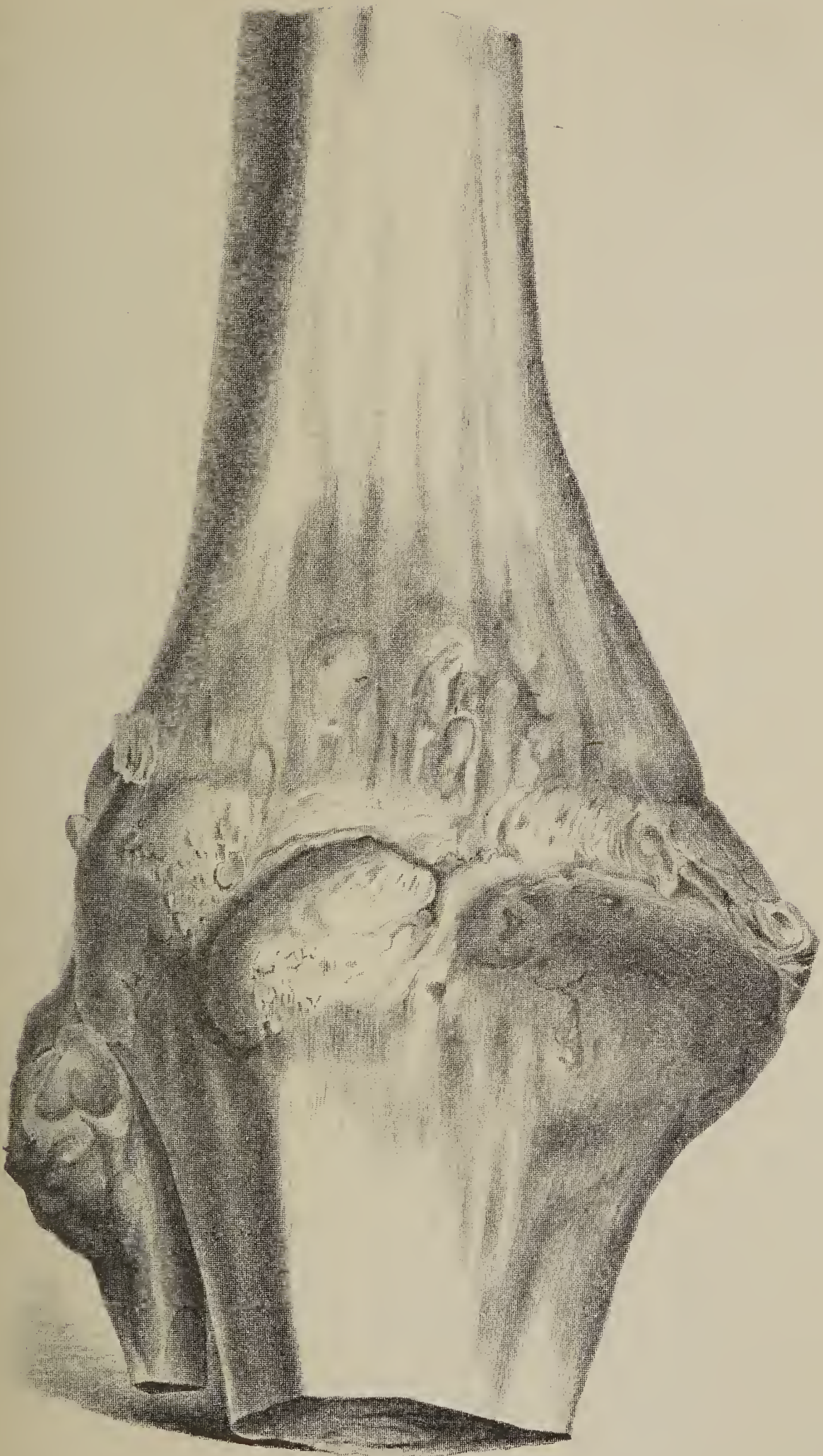


the assistant, who controlled backward the bone during the several steps of the dressing; the straps and buckles were then made fast, two over the leg, one above the ankle, a second a hand's-breadth below the knee, three over the thigh, one outside the anterior wall, just over the cut surface of the femur, a second over the middle of the thigh, and a third just below the groin. The external side of the box, which passed as high as the arm-pit, was steadied to the side of the trunk by the web belt adjusted to the apparatus. The patient, being entirely recovered from the chloroform, was removed to his bed, supported steadily in the horizontal position; the bed was a firm one—a straw palliasse, upon which was placed a hair mattress, and upon this even surface, the patient was placed. A pillow was put beneath the lower end of the box, so as to raise the limb a few inches, and so favour the returning circulation; the head was supported by a soft pillow at a comfortable angle with the trunk; I may here add, interposed between the sheet and the mattress was a folded blanket, which I have always found a safeguard against stripping from the restricted position required; an opiate and stimulant draught was given, and soon the patient fell into a quiet sleep.

Now I shall say a few words as to the portions of bone removed:—Their examination was most satisfactory, as establishing the conclusions which were arrived at before the operation. The bones have been most accurately depicted in Plate No. III. Fig. 1 presents the end of the femur; its entire cartilage of incrustation was eaten deeply around the edges, particularly behind, and the cartilage covering each condyle only adherent by a very weak bond, almost necrosed, so that on macerating the specimen for a few hours to discharge the blood, they eventually fell off, leaving the carious surface as exhibited in the drawing, with several deep eaten pits, and irregularity of surface from morbid changes and absorption. So likewise by a reference to the same Plate, Fig. 2, may be observed a similar disintegrating process brought to bear on the section of the head of the tibia; it is stripped of its cartilage of incrustation; it is pierced here and there at deeper intervals into the cancellated texture, and on the whole presents a very remarkable resemblance to the same destructive process which has acted on the femur, so likewise was a portion of its cartilage necrosed. The cartilage of incrustation of the patella was not affected in a similar manner; this I have preserved with all the bones from which the drawings were taken, in my museum. In

this same Plate, Fig. 3, I have placed the cut sections of the bones removed in their natural apposition, showing the amount taken away, about two inches three-quarters in depth.

The day after the operation, the 25th, the patient was in a most satisfactory state, his pulse had come down fifteen beats, his whole expression was changed for the better, he slept quietly nearly through the entire night, awakening only to take nourishment and stimulants. He was placed upon opium, a grain every third hour, and so it was continued, producing its soothing influence throughout the entire night; the limb rested quietly; no pain in it. In this condition he continued, without the least unfavourable symptom, until the 2nd of June, more than a week from the operation; stimulants and opiates were abundantly administered throughout these days after the operation. At this time I carefully let down the external side of the box, and removed a few soiled folds of lint and a pad; the anterior splint being all this time kept forcibly held back by an assistant, and also the internal side of the box steadily maintained in its vertical position; another assistant steadying the foot and foot-board resting in the groove of the internal side of the box. It was most remarkable how the extremities of the external wound all healed by first intention, the central portion corresponding to the back of the joint only remaining open, and through which some healthy pus and oily serum were discharged; the silver sutures were cut out, and the bond of union was perfect between the opposed edges; fresh lint and oil was laid on a thin pad laid over the part, and next the side of the splint was elevated; a similar arrangement was carried out with regard to the internal side of the limb; the wound here also seemed most healthy, and healed above and below, as on the outside; the silver cords were cut out and a pledget of lint steeped in oil laid on; the internal side of the box was next raised, and all being steadily in relation, the straps were buckled tight as before, and the anterior splint, which was firmly held back by an assistant throughout the dressing, secured in its position by the three straps which had been relaxed. From inspection of the wound nothing could be more satisfactory, the tibia and femur rested evenly and steadily against each other, not the slightest displacement laterally or from before backwards had taken place, so well had the mechanical appliance fulfilled its indication. The wound was most healthy internally and externally, nearly healed throughout by first intention, and any secreted fluids from between the bones was allowed



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MR BUTCHER ON EXCISION OF THE KNEE JOINT.
From osseous union of the Bones.

a free egress at either side. The transverse line of the flaps in front was entirely and firmly healed by first intention, and the silver sutures taken away ; nothing could be more rapid than all the changes effected for good in this case. The constitutional symptoms were disarmed of all their momentous import, the pulse down, the sleep quiet, the appetite sufficient to relish the amount of nutriment required to sustain the feeble powers of life ; the absence of all pain in the cut parts, the healthy action set up for repair, and the steady advance towards cure, all brought about within a few days.

It is not necessary to continue the daily report of this case. The dressing of the case was conducted with the same steady carefulness as just reported, and the stimulants and opiates were as abundantly continued as at first prescribed. At the end of the fifth week the bones were firmly united together, and the wounds all nearly healed ; some healthy pus was discharged from about the centre of the internal and external wounds ; the limb could be lifted by the heel from the box without pain, and in one rigid piece. All the appliances were as steadily persevered in as at first, and at the end of the seventh week the internal wound was healed altogether, and the external one only yielding a few drops of healthy pus ; the firm nature of the union was quite established. With this persistent improvement of the local changes from the first, so also were the constitutional symptoms ameliorated ; the patient had regained strength, and was putting up flesh in a very remarkable manner. Unfortunately at this time the man got cold and inflammation of the lungs, which rapidly ran into acute phthisis, and which carried him off in an incredibly short time. I was fortunate enough to secure the bones, which are united together, and form a very beautiful and instructive preparation, which I shall briefly describe. The flaps were firmly united at their edges and to the bones beneath, a small aperture only remaining in the external wound ; no force exerted by the hands pressing the femur and tibia in contrary directions, from before backwards, or from side to side, could produce the least motion. I next dissected off all the soft parts down to the bones and carefully around the line of union ; the fibrous junction was quite apparent, and even hard on being struck with the scalpel. On dissecting behind the bones, particularly towards the inside, large layers of newly organized lymph smoothed their external surfaces ; and on this semi-cartilaginous structure being taken away the firmer bond was as clearly developed

as in front. Here, then, in so short a period was established a firm cartilaginous union passing rapidly into bone, and the bones in the most perfect position in a direct horizontal line ; this, I am certain, can always be obtained, if the same means be adopted, and the same carefulness in the adjustment of the several parts of the mechanical appliances be attended to, particularly at the first, or the early management of the case. If union is denied at first from careless dressing, from moving the parts or permitting them to be moved after the first adjustments, the case will be long and tedious, as in the soft parts, if disturbed, union by first intention is interfered with ; so in excision, if the lymph thrown out between the bones throughout at the cut surfaces be shaken, unsteadied, the glueing of the parts is broken through, the first union is denied, and then the secondary method of repair must be depended on—suppuration, with its reparative product. This is why I insist so strongly on the use of my own box in cases of excision of the knee-joint, because if the limb be adjusted as I have laid down, with no meddling interference, the result will be obtained as I have given—firm union of the cut bones in the shortest period possible.

The firm, almost osseous, union of the bones in a direct line is faithfully shown in Plate No. IV., accurately drawn from the preparation by Mr. Thomsohn, and I have introduced from my work on *Operative Surgery* a drawing from a similar preparation also in my possession, of firm osseous union obtained in the accurate axis of the limb after excision (see Plate V.), and thus noticed in the work referred to, p. 168:—"Plate XII. is a beautiful engraving, taken accurately from the valuable preparation in my possession ; it illustrates the condition and perfect axis of the bones solidly united, grown into each other by one osseous bond." In order to enhance the value of this beautiful preparation I think it is well to exhibit the amount of diseased bones cut out. Plate VI. shows the portion of bones excised in their diseased state, separately and together (*Operative Surgery*, Plate II.). I have the greatest satisfaction in being able to produce these proofs of the possibility of uniting the bones perfectly by osseous union together, and in the proper axis of the limb, preserving its symmetry. Unhappily the opinion of a great surgeon, now gone, remains expressed as to the uselessness of the limb after excision ; any opinion given by this bold surgeon must be received with reverence ; yet truth must usurp its own place, and in contradiction to so great authority facts alone can decide. The late Sir James Syme writes:—"Although

FIG. 1.

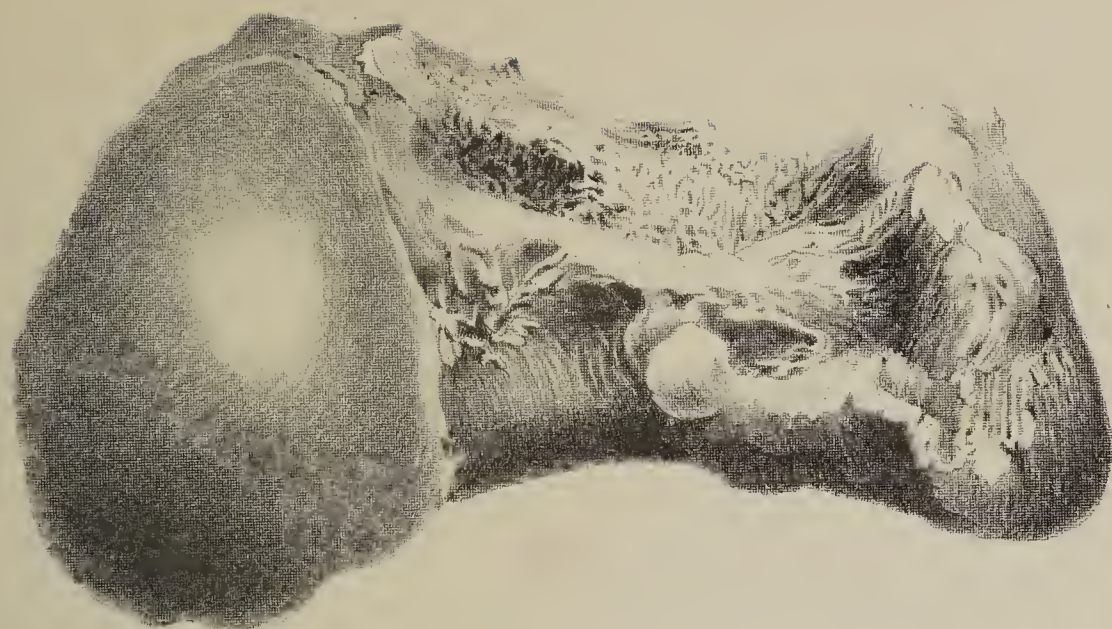


FIG. 2.



FIG. 3.



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MR BUTCHER ON EXCISION OF THE KNEE JOINT.

Bones removed in the case of John Gaime separately

the operation (excision) has been limited to cases favourable for recovery, a large portion of the patients whose fate could be regarded as decided had perished. In some cases there had been no osseous union, and in others ankylosis, with miserable deformity. Thus in Sir Philip Crampton's only successful case, the famous one of Annie Lynch, who could walk the length of a day, it appeared, from the bones which were in Lincoln's-inn Fields museum, that the tibia and os femoris were united at a right angle, so that the progressive motion must have been of a very rare and remarkable kind; while the subject of Mr. Park's never-to-be-too-frequently-quoted case probably made a better appearance climbing up the rigging of his ship, like the quadrumanous inhabitant of a tropical forest, than he would have done as a biped on terra firma."—*Edinburgh Journal*, July, 1853, p. 99. The cases which I have adduced, and the illustrations from the preparations in my possession, prove, *that the limb after excision of the joint may possess perfect symmetry, the bones being accurately and osseously united in their proper axis.*

I do not believe that swinging apparatus, or a milder means of steadying the limb—such as M'Intyre's apparatus—and many others in use, can be effective; the lateral supports are deficient; the anterior pressure, as represented in my box, is wanting; the wavering condition enjoyed by other contrivances, all lead towards either anterior, posterior, or lateral displacement of the cut surfaces of the bones. These wandering views as to the management of the limb after operation have conspired, I think, in a great measure to shake the confidence of those in the profession who know but little, practically, about the operation.

Some years since I laid down the following rules. I have turned out, successfully cured, many cases according to their direction, and I bring forth one, lately operated on and cured, to prove the certainty with which a satisfactory issue may be looked for if the observations which I have so strenuously urged be strictly adhered to:—

1. *The judicious selection of the case.*—The bones not being diseased far beyond their articular surface, which, if upon section found to be a little more than had been expected, the part should be gouged out, or an additional thin slice removed; but if to a greater extent, amputation should be at once resorted to, and as recorded in my work on *Operative Surgery*, with a hope of excellent success. Again, amputation, as I have shown, may be performed some days after excision, should any unfortunate

circumstance in the management of the case demand it. I have recorded seven instances of amputation of the thigh, and all made rapid recovery save one.

2. *The H incision should be preferred*, and the perpendicular strokes placed well back, just in front of the posterior wall of the joint, so as to allow all fluids and discharges to drain off—far more effective and safer than any opening made in the popliteal space. No portions of the flaps should be curtailed, though they may be thinned of any thickened fibrinous matter or diseased synovial membrane; the latter particularly should be clipped away with a strong scissors. All ligamentous fibres, both around and within the joint, should be cut through, and the extremities of the bones fairly freed and exposed, great caution being taken not to break up the posterior wall of the joint. It should be set free from the bones in this way:—This fibrous structure, strengthened by the expansion of the semi-membraneous muscle, should be detached with the knife from the edge of the tibia, only to about the eighth of an inch in depth, and then the fibrous structure forced down from the tibia to the required extent with the handle of the knife, and so in a similar manner it should be set free from the femur.

3. *The patella should be taken away in all cases, whether diseased or not*, and then the section of the bones, well thrust out in front, should be made with “Butcher’s saw,” from *behind forward*, due attention being paid to the axis of the thigh-bone at the time of its division, that the section be strictly at a right angle with the shaft; by this means *the artery (popliteal) is safe*.

4. All bleeding vessels should be tied, or any that have sprung or retracted should be drawn out and secured, so as to guard against intermediary hæmorrhage.

5. *While the patient is yet on the operating table, the limb should be placed in the horizontal position, either by gentle and steady traction, combined with pressure of the cut surface of the bone backwards, or, if necessary, the division of the hamstring tendons.* Their support behind in every case I look upon as of great value, therefore their section must be looked upon as a bad expedient towards straightening the limb.

6. *During the adjustment of the bones, great caution should be exercised that their surfaces should be, throughout their extent, in contact, and that no soft parts intervene.* The flaps should be then laid down and connected by suture closely throughout their transverse division, while the lateral incisions should be brought



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MR. BUTCHER ON EXCISION OF THE KNEE JOINT.
Bones removed in the case of John Gaime.
placed in opposition.



together only at their extremities by one or two points, and the central portion of each left open just in front of the posterior wall of the joint, and lightly dressed with lint soaked in oil, thus affording a ready outlet for the escape of fluids. The extremity should next be cautiously laid upon "Butcher's box-splint," padded to the natural configuration of the limb, its sides elevated, foot-board applied, suitable pads introduced, and then the anterior splint laid on, taking the place of the assistant's hand, which, from the first, restrained the femur from projecting forward; then the straps buckled, the waistband applied, and the patient may with safety be removed to his bed. The bed should be prepared in this way, and consist of a couple of hair mattresses, laid one upon the other, evenly supported, and, intervening between the upper one and the sheet, a folded blanket, with feather pillows for supporting the head and shoulders; the bed should be moderately warmed, so as to prevent the patient being chilled when put into it.

7. *The limb should not be disturbed for several days*, the length of time depending a good deal on the season of the year when the operation is performed—whether it be in the heat of summer or in the cold of winter. After five or six days it may be necessary to let down the sides of the box-splint, to remove discharge, change internal pads, or soiled dressings, &c. By the apparatus named, the facilities for cleansing the limb are so efficient that it may not be required to lift the member from its support for even so long a period as six weeks, as evidenced in my own practice. Should, however, it be considered expedient to change all the dressings, the anterior splint should be steadily held back by assistants, and the limb pressed up to it, thus guarding against any starting of the femur forwards, or displacement laterally when lifted from its bed. When the box is prepared and freshly arranged, the limb, controlled after the manner mentioned, should be laid down, the side splint elevated, foot-board secured, and the straps over the anterior splint first tightened, so as to maintain it in that position, from which it was never suffered to change. I would impress the advice still further—if the straps be loosed for any purpose, *the hand of an assistant should steadily keep the anterior splint in its position*, and well pressed back, until the artificial support is again brought to bear upon it, and fastened.

8. *In cases where large abscesses form in the vicinity of the excised joint, or up along the thigh, Chassaignac's drainage tubes may be used with the best hopes of success.*

9. *The free administration of stimulants and sedatives is imperatively demanded in all cases of excision*, regulated to a certain extent by age, sex, temperament, and habits.

Nearly twenty years ago, when first writing on the subject of excision of the knee-joint, I stated that *the symmetry of the limb could be preserved and also its usefulness*. I am glad—it is a great pleasure now—to confirm this opinion, nearly twenty years having passed by. On the 20th of January, 1854, I excised the knee-joint from a man, John Gaime, aged 43, for incurable disease of the joint. He made an admirable recovery, and on the 8th of December, 1854, I described his condition as follows:—“He stands erect, without the slightest droop; from being an emaciated worn creature, he has become large and fat, with the entire muscular system well developed; the sickly hue and haggard expression have left his face, and he now looks cheerful and happy; he feels in admirable health. On closely examining the limbs, the affected one has nearly recovered its dimensions and muscular tone, the thigh perfectly so; it preserves an accurate axis with the trunk, but is slightly straighter than the sound limb. The adapted surfaces of the tibia and femur are bound together by a rigid permanent union; grown into each other, they are immovably fixed. The motions of the limb, effected by the muscles of the hip, are very perfect. When in the horizontal posture, the patient can elevate, depress, or rotate inwards or outwards the limb, with the greatest precision and accuracy; he possesses a like power in executing those movements either rapidly or slowly. Unsupported, he can sustain the entire weight of his body upon the limb unassisted by stick or cane. He can walk steadily with scarcely any perceptible halt, the limb being one solid piece. The amount of shortening is not very conspicuous, being two inches; it is not much greater than is absolutely necessary for the perfection of progression under the circumstances. A layer of cork beneath the heel, inside of his shoe, fully compensates for the loss and conceals all deformity. The motions of the ankle-joint are perfectly preserved. It is true that, on first making the attempt to walk, even for a short distance, he complained of uneasiness, and feeling tired first in this joint, but never referred pain to the knee; this enfeebled condition of the ankle may be fairly ascribed to the maintenance of the limb in a constrained and straight position for such a length of time; it has been, however, only a temporary uneasiness, which gradual exercise and time have



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MR BUTCHER ON EXCISION OF THE KNEE JOINT.
Picture of J Gaimé taken nearly 20 Years ago soon after the operation.
the Limb perfect



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MR BUTCHER ON EXCISION OF THE KNEE JOINT.

Picture of J. Gaime, taken now, October, 1872.

nearly 20 Years having passed by since the operation, the Limb perfect.

removed. The patient can now walk without any support. He plants the limb firmly upon the ground without being sensible of the slightest concussion, and feels confidence and satisfied in its strength. On the day before yesterday he walked to the Park and about the grounds, a distance of over four miles, assisted by a walking-stick, and he assured me he was not in the least degree fatigued or the worse for it. Ever since the man left the hospital, now nearly three months ago, he has followed his trade as a shoemaker, and in this business the limb is of great service, for it is necessary to grasp the shoe between the thighs at their lower part, so as to steady it for stitching; this he is perfectly able to accomplish by supporting the limb upon a form; had the thigh been amputated, he says he could not have worked at his trade. The portions of bone taken away in this case are truly represented of their full size; and the figure of the man as he stands now, eleven months after the operation, is most accurately depicted by the faithful pencil of Mr. Connolly. The bones and original drawings are in my possession."

I have copied from my work on *Operative Surgery* the foregoing description, and also the plates representing the portions of diseased bones taken away, and the picture of the man when he was cured, and the above description as drawn up.

Plate VII. shows the portions of diseased bones separately, and Plate VIII. exhibits them together, as removed in the case of John Gaime, operated on twenty years ago. Plate IX. exhibits a faithful picture, by Connolly, of John Gaime, when the above description was written, nearly twenty years ago.

Twenty years, then, have passed by, and, throughout this long period, the man has laboured at his occupation as a shoemaker without interruption. His appearance and his condition now are as good as they were then. Let the reader refer to the description of his state, so perfect a few months after the operation, and contrast it with his condition now, though nearly twenty years have passed by.

He is now strong and vigorous—sickness has never visited him, and during this long time the limb has never failed him in all the rough usages of life through which he has passed. A few days since (writing now, October, 1872), I had a photograph taken of the man by Mr. Lesage, and conveyed to the stone with the greatest accuracy by the able pencil of Mr. Thompson. Plate X. affords an admirable illustration of this remarkable picture. The

countenance of the man has been marked by time, but his bodily appearance is more in symmetry than when depicted after the operation. The limb operated upon has not departed in the least from its solid, rigid position, and look; but the calf of the leg is more developed, though the thigh is not more convex externally. The whole cast of the man as he stands now, twenty years having passed by, is more defiant, more at ease, and as it were on more perfect equality with the world. The picture seems to speak—indeed, carries conviction, *that after excision of the knee-joint, the symmetry of the limb can be preserved, and also its usefulness for many, many years.*

ART. XIII.—*The Dangers of Chloroform and the Safety of Ether as a means of producing Insensibility to Pain.* By J. MORGAN, M.D., F.R.C.S.I.; Surgeon to Mercer's and to the Westmoreland Hospitals; Professor of Surgical and Descriptive Anatomy, Royal College of Surgeons, Ireland, &c.

THE progress of the art and practice of surgery owes so much of its advancement of late years to the use of anæsthetics, that it becomes daily of more importance to assure ourselves of what is the best method of procuring the necessary state of insensibility, and what is the agent which will enable us most efficiently, and, above all considerations, most *safely* to effect our object.

Chloroform unquestionably has had the largest use accorded to it, and has conferred inestimable benefits; but from the uncertainty of its action, and the risks which undoubtedly accompany its administration, it carries with its use a sense of insecurity which, within the last few years more particularly, has impressed the profession and the public so much, that ceaseless efforts are made to the attainment of a safer means of producing anæsthesia, as instanced by the introduction of new agents, and by the many appliances for their application.

Each new work of surgery which issues from the press, evidences the anxiety which the use of chloroform carries with it. The directions are more precise, and the warnings of its danger are more urgent. No doubt these warnings have had their influence, and every practitioner will be ready to admit that he has seen so much of its unpleasant and rather treacherous effects as to make him cautious in its administration—yet, on reviewing the question, notwithstanding all the care given, the use of the best apparatus,

the preparations made to meet any emergency, and the energy which the knowledge of imminent danger imparts to our efforts in applying them, it must be admitted many fatal accidents have occurred, and many hair-breadth escapes barely leave room for congratulation on the successful resuscitation of a patient, whose life might have been of enormous value to his family, or even to the community.

Statistics, which are of such avail in other discussions, are comparatively inapplicable to the question of the danger of Chloroform. It is said that in these countries the deaths are one a week. Admitting this low average as approximately representing the ratio, it must be remembered that no estimate is given of the number of cases where the patient was snatched from death by the watchfulness of the administrator, or restored from a state of suspended animation by the diligent efforts of the surgeon with his assistants, rendered the more intensely anxious and energetic by the life of his patient being in immediate peril, and his professional reputation being more or less at stake. A notable instance of such a critical condition is given by Dr. Kennedy in his address at the British Association just held, which, as it is candidly made public, serves as an illustration of a complication, I think I may safely say, that every surgeon largely engaged in practice has witnessed more than once, approximately at all events. The accident is detailed as one of "Animation suspended for upwards of twenty-two minutes by Chloroform."

"I got up from the operation," says Dr. Kennedy, "to receive a shock such as I never experienced before or since. Our attention was called by the Chloroformist to our patient, who lay with her head over the edge of the table, her jaw fallen, and to all appearance dead. There was no respiration; no pulse at the wrist; no action of the heart. I took out my watch, in order to take care that attempts to restore animation should be continued for a sufficient time before desisting, but without a hope that they could be attended with success. Experience in resuscitation of infants had led me to expect little from forcible inflation of the lungs by inserting a tube into the trachea, but much from a continuous and persistent imitation of the act of respiration by regular pressure on the elastic ribs of the subject—producing, as nearly as possible, the systole and diastole of the lungs and chest frame, as observed in nature. Without a moment's delay, I sprang upon the high table, so as to command the prostrate woman; and, kneeling across her,

placed a spread hand over the lower ribs, and kept up an artificial respiratory action in the lungs of about twenty pressures in a minute. In the meantime all the available means of resuscitation were most assiduously carried out. Friction and sinapisms were applied to the arms, legs, and surface. As speedily as buckets of warm water could be procured, her hands, feet, and limbs were immersed in it. These efforts were persisted in, whilst minute after minute was anxiously counted, with not the slightest evidence of restored vitality. At length, our souls absolutely sickened with disappointment, and, I may add, all hope having fled, we were, at the expiration of twenty-two minutes, repaid for our exertions by a convulsive gasp. Nearly a minute took place before a second occurred. Then they recurred at half-minute intervals; and eventually the natural breathing became established, and the artificial respiration was desisted from."

True, in this instance the patient did not die, although "all hope had fled" at the time, but yet it furnishes a powerful argument against Chloroform; and, however gratifying it may be to find that recoveries, after such imminent dangers, do occur, such accidents do not fail to carry with them distrust in the application of an agent of such dubious power.

This fairly represents the painful contretemps which will, without warning, appear, and which will occur in persons not exhausted by disease, and where an operation is being performed where no immediate danger is at all to be apprehended. Indeed the fatal cases from Chloroform have been mostly in those who were apparently in health, and such simple operations as in dentistry have not been an unusual source. Mr. Green has, by detailing some fatal and some almost fatal cases of Chloroformization, drawn particular attention to the question, and candidly remarks—"That the day cannot be far distant when the public safety will demand some inquiry into the use of this deadly agent more comprehensive than anything hitherto done in that way."^a

In this country, apprehension more or less accompanies the process of Chloroformization; in the smaller operations in surgery it is almost completely given up; in dentistry, where a safe anæsthetic would be invaluable, it is also almost abandoned. Those that are broken down and exhausted by disease are not the cases where Chloroformization is so much to be feared, perhaps, as in those who are apparently in tolerable health, and such deaths are

^a B. Medical Journal.

naturally all the more unexpected and impressive in their effects, causing a great amount of distrust and hesitation in the use of an agent otherwise so effective.

It may fairly be inquired, can a safer anæsthetic be ascertained, or one which will produce as perfect a state of insensibility without compromising the life of the patient? As I believe, on calm investigation, and on laying aside the prejudices which the habitual use of Chloroform may arm us with against Ether as an anæsthetic agent, that nevertheless Ether furnishes arguments in its favour which are unanswerable, specially when the great question of safety comes to be considered. The American surgeons and many on the continent, prefer it as an anæsthetic, chiefly on account of its safety. Dr. Jeffries, in a paper at the late Ophthalmological Congress, remarks that “it is almost impossible to kill a person by Etherization.”

In an elaborate paper read by Dr. Coles on the subject at the Medical Society of Virginia, 1871, the following tabular result was found, when the statistics collected by Dr. Andrews in America, and by Dr. Richardson in England, were compared:—

Agent employed.	Deaths.	Inhalation.	Or
Ether, - - -	- 4 to	92,815	1 to 23,204
Chloroform, - -	- 53 to	152,260	1 to 2,872
Mixture of Chloroform and Ether,	2 to	11,176	1 to 5,888
Bichloride of Methylene,	- 2 to	10,000	1 to 5,000

Proving, that Chloroform is *eight times* more dangerous than Ether, and is the *most dangerous* of all anæsthetics in use.

The writer^a of the latest surgical work in America states that he “prefers Ether in a very large majority of cases,” and “there is no danger, as in the case of Chloroform, of the vapour being too concentrated;” while the London Chloroform Committee of Investigation, appointed in 1864, declares that Ether is preferable to Chloroform as to safety, and is objectionable but for some inconveniences which are specified—as, disagreeable odour, excitement, and greater tediousness.

I myself have used Ether over 160 times during the last two months, and I can unhesitatingly say that nothing could have been more satisfactory. I did not once see the slightest approach to syncope, or even any unpleasant symptom, although it was exhibited to patients as old as seventy-one and as young as four years.

^a Asshurst.

I have produced full insensibility in three minutes, and have kept a patient for fifty-five minutes under the influence.

I have used Ether where Chloroform had been used before, but the results were incomparably superior in every way; there was less danger, less struggling, no sickness of stomach, and a more manageable anæsthetic condition from which the patient emerged as from a sleep. A most successful instance, during the last few days, for a cataract operation, by Dr. Jacob, on a child of eleven, is worth recording. The child was laid on the operating couch, was insensible by Etherization in four minutes, was operated on and awake again, with a smile on the face, within ten minutes, wholly unconscious of any thing having been done.

Dr. Taylor of Nottingham, in a note just received, speaking of Ether, mentions—"I used it this morning on a private patient for cataract extraction, to whom I had before given Chloroform, which produced such alarming results that I dare not give it again. I have given it in about twenty cases with satisfactory results."

Chloroform, from its agreeable flavour, and its rapidity in many cases, has gained ascendancy in these countries, as might naturally be expected from its being introduced by Sir J. Simpson; but, on reviewing the experience of its action, and the evidences such as I have quoted from the Committee of Investigation as to its merits, and admitting the dismay which deaths from its use, from time to time, inspire us with, I must believe that Ether will recommend itself as the safest and the more satisfactory agent.

It has been stated that Ether, when used as an anæsthetic, produces as much, if not more, struggling than does Chloroform, in which the spasmodic condition is so frequent, that writers lay it down as one of the stages. I must say I find this not to be the case, and I am satisfied that, with a larger experience, practitioners will confirm this statement. The struggling or spasm is due to the imperfect modes hitherto pursued in the administration, where a sponge is used, or a cone of paper, or a towel, or, in fact, where air is freely admitted; this, I believe, is a mistake. Air should be more or less perfectly excluded, and the patient be allowed to breathe the Ether vapour repeatedly. The sickness of stomach which has been noted, as in Chloroform administration, is due chiefly to the same cause, and also to the fact that the patient is allowed to eat within a short time of the administration. I have only seen five cases of sickness in 160, and in these Etherizations, either food or drink had been taken shortly before.

I have used Ether in several cases where I had used Chloroform previously, and found that the struggling or spasmodic stage, which was energetic and almost uncontrollable in Chloroformization, was nil with Ether. The remark I have quoted, from Dr. Taylor, and the experience of others, confirm this statement.

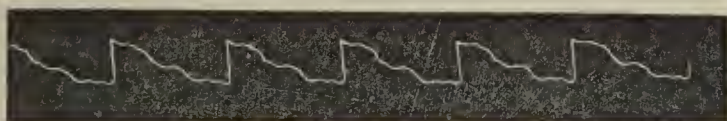
The observations of Dr. Asshurst, who has written the last American surgical work of note, I am satisfied is the correct one; and his constant and large experience must carry weight with it, coming from a country where Ether is the agent most usually relied upon. He states, that "Chloroform requires greater care in its administration than Ether, and its use is attended with much greater risk to life."

Attention to details is as essential to the perfect administration of Ether as in many other procedures of importance.

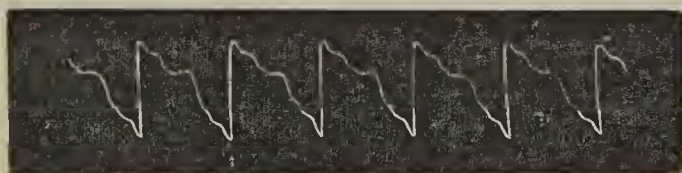
The Ether vapour should be freely applied. From its volatility this entails a certain difficulty, which I have succeeded in overcoming by a simple and efficient arrangement of an inhaler. This is made of a sufficient capacity to allow the diffusion of the Ethereal vapour. It is furnished with a series of frills in the interior, which facilitate the volatilization of the Ether by its trickling over them; and the upper part of the inhaler is supplemented by an India-rubber diaphragm. An elastic tube conducts the vapour from the bottom (where, from its gravity, it descends), and a mouth-piece, filled with a water cushion around, can be so aptly applied that but little air can enter. The elastic diaphragm allows the respiration to be carried on *within* the inhaler, while the Ether vapour is constantly accumulating within, by evaporation. If the diaphragm be watched, the respiration can be fully observed. At first it will be shallow, but gradually increase; and as anæsthesia supervenes, it will become more full and energetic; the more profound the anæsthesia, the more full will be the respirations.

At the same time, if the pulse be taken by the sphygmograph, it will be found acting more energetically, as in the following illustration, taken from a young man of twenty-two:—

Before Etherization.



After Etherization.



Evidently we are furnished thus with proof that the two great functions of respiration and circulation are not interfered with.

Sensibility will, for the time, be extinguished; the patient will lie with the face somewhat congested, overwhelmed as it were with a deep sleep, and may snore; the eyes are usually open and slightly upturned, and the pupils usually dilated. This condition is perfectly manageable; the mouth-piece may be withdrawn for a time, and re-applied when signs of returning sensibility appear, or air may be admitted into the inhaler by a simple arrangement in turning the cap of the supply tube. I prefer taking away the mouth-piece and letting the patient breathe—should it again be required—the concentrated vapour from the inhaler.

It might be supposed that the frequent re-breathing of the same vapour would be impossible—this is not so. Whether from the diminished formation of carbonic acid, or from the fact that the diminished sensibility caused by the Ether vapour, allows the breathing of the carbonic acid, or from both, the patient can re-breathe the same vapour over and over again. That a diluted form of carbonic acid is not so very dangerous, is shown by the fact observed in the mining districts in Cornwall for instance, where the work goes on in gangs; the foremost labourer, with a knowledge that he may become insensible, relies on his rear-rank companion to draw him out when he becomes so, which he does in due time, and steps on himself to undergo a similar ordeal, although a lighted candle would go out, and it was impossible to remain over 10 minutes.^a

On reviewing the practice of the American surgeons more particularly, it will be observed that those practitioners—who are most solicitous in excluding air—report the best results, and assert, as the result of their experience, that “anæsthesia may be induced by means of Ether as quickly as can safely be done by means of Chloroform, and with a quantity weighing less, and costing very little more than the requisite amount of the latter;” at the same time it is observed that it is “endeavoured to prevent any, even the slightest, admixture of air.”^b The nitrous oxide gas, which has gained some support as an anæsthetic, in like manner acts most efficiently when breathed without the admixture of air; and in various comparative observations I have made, by admitting and

^a “Air and Rain.” Dr. Angus Smith, p. 81.

^b Asshurst Surgery, pp. 75 and 77.

excluding a free mixture of air, I am satisfied that anæsthesia is more perfect and more devoid of inconveniences when the Ether vapour is freely taken in.

On comparing the effects with those of Chloroform, where the patient is some time submitted to the influence, occasionally there is some excitement in strong or nervously constituted persons, and in men more especially; but it is nothing like that seen so often in Chloroform inhalation, and very soon subsides. If the exhibitor stands behind the patient, and applies the mouth-piece equably and firmly over the *mouth and nose*, the condition will pass in a moment or two. It does not occur in many patients; and in whatever degree it shows itself, it indicates that the patient is on the verge of insensibility, and that the administration is to be pressed on; as Dr. Asshurst remarks, "if the patient breathes freely he cannot be too rapidly Etherized, and there is no danger, as in the case of Chloroform, from the vapour being too concentrated." In some cases this condition is simply shown by a withdrawing of the head from the mouth-piece, this also indicating that it is the most suitable time to press on the influence. It is to be remembered, that during the first few inhalations, the patient should be allowed a little time to become accustomed to the odour of the Ether; but if Ether be exhibited by the inhaler, as I propose, no struggling or spasmodic stage can, in the generality of cases, be of inconvenience.

Sickness of stomach is said to succeed to Etherization more than to the use of Chloroform; my experience with both leads me altogether to disagree. The precaution should be taken, that no food be ingested within two or three hours at least. I am sure the instances will be rare, indeed, where sickness occurs, if this simple rule be adopted.

Another objection, if it can be called one, that has been suggested is, that of the odour of Ether from the breath being so persistent. I have not found it after a few hours. But even if it lasted a week, it could not have a feather's weight influence in the consideration of using an agent which has been shown to be "*the safest of all anæsthetics*," and than which, Chloroform, which alone can be compared with it in efficacy, is "*eight times more dangerous*."

I cannot avoid urging the question on the attention of the profession, when America, which has had a quarter of a century's

experience with Ether, prefers it as the *safest* agent, although, in my opinion, it has been hitherto but imperfectly used.

The use of the inhaler I have devised, completely obviates all difficulties, and renders the use of Ether, as an anæsthetic, applicable to all operations, whether large or small, and also applicable to all ages, with the incalculable advantage of offering the greatest security that can be given by any of the anæsthetics known at the present day.

As to the matter of cost, about 2 oz. of Ether suffice (by the inhaler), whereas a $\frac{1}{2}$ pint is frequently used otherwise. The Ether, if anhydrous, and S. G. of 720, may be made from mythelated spirit. Care should be taken in all cases to ascertain its being correct and of the purest quality.

ART. XIV.—*Case of Thoracic Aneurism (false sacculated of third stage of Arch of Aorta); Death from Rupture into Œsophagus.*
By SURGEON-MAJOR CHARTRES, M.A., M.D. (Dub.), 8th Hussars.

HAVING already published in the *Dublin Quarterly Journal* for February and August, 1871, particulars of two interesting cases of thoracic aneurism, I am now desirous of recording a concise account of a third, which has recently occurred in my practice. The subject of it, in marked contrast with the former ones, was a stout, hearty-looking, and apparently healthy man, full of life, who during the course of the complaint had not suffered from mental depression, lancinating, or, in fact, other pain, or dyspnœa to any marked extent. He had, however, the usual syphilitic as well as a rheumatic history, and fat was deposited in excess upon all available regions of the body.

The signs which led to an early diagnosis of the disease were those depending upon the effects of pressure by the tumour upon the vagus nerve, the œsophagus, and the left bronchus. The feebleness of pulsation in left carotid arteries during life was regarded as a most important diagnostic sign, and verified by many who saw the case; however, no direct cause for it in the locality or site of the aneurism was discoverable at the examination after death. The following is a brief outline of the case and its autopsy, viz.:—

Troop Sergeant-Major William Black, 8th Hussars, aged thirty-two years; twelve years' service; never abroad; unmarried;

admitted into hospital on the 8th September, 1872; a bloated-looking, fat man, a free liver, with a clear rheumatic and syphilitic history; never mercurialized. Had been apparently in good health until about five weeks before admission, when his troop being on fire-picket duty, and an alarm of fire in camp being sounded, he "doubled" with the engine from Donnelly's Hollow to Vidette Stables, nearly a mile, without stopping, and on arriving at latter place was completely "blown" and exhausted; a short hacking cough resulted, and he has been complaining ever since.

Owing to other non-commissioned officers of his troop being in hospital, he deferred reporting himself sick until the present occasion, when the symptoms were, a *very peculiar* loud-ringing, paroxysmal cough, increased by posture on back, relieved by posture on right side (he never could lie on the left for any time without distress); scanty mucous expectoration slightly tinged with blood; wheezing, rustling respiration on inspiring deeply; a slight amount of laryngeal stridor occasionally detected; some dyspnœa—not very much, nor more than might be accounted for by his obesity and the effects of a slight catarrh; some feeling of uneasiness in chest but not amounting to pain, from which he was most remarkably free all through; dysphagia, a most marked symptom, referred to junction of middle with lower third of sternum, but never to episternal notch; could not swallow any solid without washing it down, and always felt it sticking at seat of obstruction.

On examination of chest no dulness on percussion, throbbing, pulsation, or tumour was discernible; no second centre of pulsation; no bruit audible; but the heart's diastole was heard very distinctly over supra-mammary regions on both sides; the systole not so loud as it should have been; posteriorly on each side of spine nothing audible save the heart's sounds faintly at one spot on left side corresponding to about sixth dorsal vertebra; however, the respiration throughout the left lung was very feeble, absent altogether superiorly and anteriorly, whilst that of right was strikingly loud and puerile.

The symptoms all pointing to the effects of pressure upon the pneumogastric nerves, œsophagus, and left bronchus, suspicion of an intra-thoracic tumour was at once entertained, and the disease diagnosed to be a thoracic aneurism of aorta. In searching for farther symptoms it was discovered that there was a very decided difference in the pulsation of carotids, that of left side being very feeble, but the radial and femoral pulses were normal; no difference

in the pupils could be detected; no aphonia or hoarseness; no arcus senilis; no pain in back; no venous turgescence or œdema were present.

He was treated with chlorodyne mixture and the inhalation of chloroform.

On the morning of the 18th September, whilst standing by his bed, verifying the symptoms and signs previously noted, he vomited suddenly large gushes of blood, and quickly died.

Examination of body twenty-four hours after death :—

Body, well nourished, loaded with fat. Head, not examined. Thorax, pleuræ and lungs normal. Heart empty, its fibres pale. Aorta, the seat of atheromatous patches from origin to opening in diaphragm, whitish, semi-transparent, inelastic; in third stage a false sacculated aneurism, springing from its right wall, was discovered, globular, the size of a small hen's egg, filled with red laminated coagula, communicating with the artery by a well-defined opening, an oval mouth of the sac, one inch in vertical length, one quarter of an inch in transverse breadth; around this the inner surface of the vessel was much puckered. It communicated on the other side with the œsophagus (upon whose substance it encroached, with which it became amalgamated or incorporated, as it were, and into the calibre of which it projected very considerably) by a large defined opening, vertical, oval, one inch and a half long, by half an inch wide, through which were protruding slightly portions of the contained red laminated fibrine; here, at the seat of rupture, blood was freely poured out into the stomach, which was much distended by the large dark jelly-like mass which was evacuated therefrom.

The left pneumogastric nerve was found stretched, and the left bronchus, as it wound round the arch to become an anterior relation of its third stage, pressed upon; there was nothing, save the diseased state of the artery itself, discovered to account for the feebleness of pulsation in the carotids of left side, a symptom verified by many, the aneurismal tumour being well clear of the origins of left carotid, and subclavian arteries from arch of aorta. The bodies of the vertebra were not in the least affected.

Abdomen, liver, and kidneys, healthy. Spleen of normal consistence and structure.

In the two previous cases already alluded to, the state of the spleen was particularly noted as having been shrivelled and shrunken; a suggestion was accordingly offered, to the effect that there might possibly be some connexion between this condition of

an organ, which is supposed to be concerned in elaborating the albuminous formative materials of the blood and storing them up, and the atheromatous state of the aorta, because if a prime source of this albuminous product be injured, a preponderance of the non-azotized constituents of structure, it was considered, would be substituted instead; the state of this spleen, however, does not point to the conclusiveness of any such deduction.

ART. XV.—*On Suppuration in the Cornea.* By J. M. PURSER, Physician to the City of Dublin Hospital; Lecturer on Physiology in the Carmichael School of Medicine.

IN the year 1846, Dr. Waller discovered the fact that, under certain circumstances, the white corpuscles of the blood pass through the walls of the vessels into the surrounding tissues, and he believed that these extravasated cells constituted at all events a part of the corpuscles found in the pus or mucus of an inflamed part. This discovery^a was published in a journal which is little read by medical men, and, probably for this reason, it excited no attention, so that the appearance of Cohnheim's paper^b in 1867 had the effect of starting a discussion on the origin of inflammatory products which still continues, and which appears as far as ever from a satisfactory termination.

It is unnecessary in this place to do more than allude in the very briefest way to Cohnheim's results, as they are now well known to everyone. He finds, firstly, that in inflamed parts the white corpuscles leave the vessels in large numbers; and, secondly, that the cells of the inflamed tissues undergo no changes but such as are of a degenerative kind and lead to their death. From this he concludes that all the corpuscles of pus are directly derived from the blood, in fact that they are merely extravasated blood-cells. His experiments were made on the mesentery and the tongue of the frog, and on the corneæ of frogs and other animals.

Early in 1868 Dr. F. A. Hoffmann published a paper,^c in which

^a Microscopic examination of some of the principal tissues of the animal frame, &c. *Philosophical Magazine*, xxix., p. 271. Microscopic observations on the perforation of the capillaries by the corpuscles of the blood, and on the origin of mucus and pus globules.—*Ibid.*, p. 397.

^b Ueber Entzündung und Eiterung. *Virchow's Archiv.* Bd. xl., s. 1.

^c Ueber Eiterbildung in der cornea. *Virchow's Archiv.* Bd. xlii., s. 204.

he described the production of pus corpuscles from the connective tissue-cells of the cornea. His researches were made partly on the corneæ of living animals, and, partly, on those which had been removed from the eye, prior to the application of the irritant, and were so cut off from the blood-vessels and from the possible immigration of blood corpuscles, but which were kept alive for a considerable time by careful attention to the surroundings. In 1869 Cohnheim published another paper^a detailing new experiments and re-affirming all the conclusions of his former work. Since then, so far as we know, Cohnheim has been silent on the subject.

The passage of the white corpuscles through the vascular walls has been very generally accepted as true by pathologists. Some few observers, as Cornil and Ranvier,^b Balogh,^c Feltz,^d and Duval,^e have been unable to satisfy themselves of the extravasation, while Dönitz^f and Beale^g admit the passage of detached portions of the protoplasm of the corpuscles; but the vast majority of experimenters, even of those who dispute the second of Cohnheim's propositions, confirm the observation of the passage through the vascular walls of the white corpuscles.

In 1870, Stricker commenced the publication of a series of papers^h by himself and his pupils, treating of the changes which the various tissues undergo when inflamed. In these essays Cohnheim's exclusive views on the origin of pus corpuscles are combated, and the description is given of proliferation processes which have been observed, with more or less certainty, to occur under the influence of irritation in the cells of almost every tissue in the body. The following parts have been examined:

^a Ueber das Verhalten der fixen Bindgewebkörperchen bei der Entzündung. Virchow's Archiv. Bd. xlv., s. 333.

^b Manuel d'histologie pathologique. P. 83.

^c In welchem Verhältnisse steht das Heraustreten der farblosen Blutzellen durch die unversehrten Gefässwandungen zu der Entzündung und Eiterung? Virchow's Archiv. Bd. xlv., s. 19.

^d Recherches expérimentales sur le passage des leucocytes à travers les parois vasculaires. Journal de l'Anatomie. Tom. vii (1870-71), p. 33.

^e Recherches expérimentales sur les rapports d'origine entre les globules du pus et les globules blancs du sang dans l'inflammation. Archives de Physiologie. 1872. P. 168 and p. 351.

^f Henle and Meissner, Bericht. 1868. S. 22.

^g Remarks on Cohnheim's new doctrine. Medical Times and Gazette, 1868. Vol. i., p. 496.

^h Studien ans dem Institute für Experimentelle Pathologic in Wien.

Cornea (Stricker and Norris^a—Hansen^b); brain (Jolly^c); conjunctiva (Oser^d Heiberg^e); voluntary muscle (Tschainski^f); tail of tadpole (Klein and Kundrat^g); tendon (Güterbock^h); lymphatic glands (Yeoⁱ); bone (Lang,^j Rustizky^k); endothelium of serous cavities (Kundrat^l); walls of vessels, endothelium, and smooth muscular fibres (Durante^m); cartilage (Hutobⁿ); capillary vessels (Carmelt and Stricker^o); and epithelium of urinary tubes (Lipsky^p). Besides this series of papers other works^q have appeared with the same tendency; and these, taken in conjunction with the long silence of Professor Cohnheim, made us hope that the question was approaching a settlement, and that we should have henceforward to admit a double origin of pus corpuscles, from the blood on one hand, and on the other, from the cells of the tissues. But this hope has been removed by the recent publication of a work^r by Professor Axel Key and Dr. C. Wallis, who dispute the results of Stricker and his followers, and maintain the truth of the conclusions originally put forth by Cohnheim. It is my purpose, in the present communication, to examine the observations and

^a Studien ans dem Institute für Experimentelle Pathologic in Wien, s. 1.

^b Medizinische Jahrbücher 1871, s. 212.

^c Studien, s. 38.

^d Studien, s. 74.

^e Med. Jahrb. s. 7.

^f Studien, s. 86.

^g Studien, s. 99.

^h Med. Jahrb. s. 22.

ⁱ Med. Jahrbücher, s. 30.

^j Med. Jahrbücher, 1871, s. 34.

^k Med. Jahrbücher, s. 547.

^l Med. Jahrbücher, s. 226.

^m Med. Jahrbücher, s. 321.

ⁿ Med. Jahrbücher, s. 399.

^o Med. Jahrbücher, s. 428.

^p Med. Jahrbücher, 1872, s. 155.

^q *Cornil and Ranvier*, loc. cit. pp. 72, et seq. *Caton*.—Contributions to the cell migration theory.—*Journal of Anatomy and Physiology*, Nov. 1870, p. 45. *Sanderson*.—*Medical Times and Gazette*, Jan. 1871, p. 61. *Wadsworth and C. J. Eberth*.—Die Regeneration des Hornhautepithels.—*Virchow's Archiv*. li., s. 361. *Hoffmann*.—Epithelneubildung auf der cornea.—*Virchow's Archiv*. li., s. 373. *Purser*.—Inflammation and suppuration.—*Proceedings of Royal Irish Academy*, 1871, p. 156. *Rindfleisch*.—*Pathological histology* (Syd. Soc.), p. 120. *Lavdowsky*.—Das Saugadersystem und die Nerven der Cornea.—*Schultze's Archiv*. viii., s. 547. *Güterbock*.—Studien über die feineren Vorgänge bei der Wundheilung an der Cornea.—*Virchow's Archiv*. li., 465.

^r Experimentelle Untersuchungen über die Eutzündung der Hornhaut.—*Virchow's Archiv*. lv. s. 296.

arguments detailed in this paper, which fail to carry conviction to my mind.

The authors think that former writers have paid too little attention to the destruction of the cornea corpuscles caused by the application of an irritant. They find that when the centre of the cornea is cauterized with a point of silver nitrate, the cornea cells, to a considerable distance around the eschar, are killed. The cells become paler than the normal corpuscles; do not stain with gold chloride; vacuoles form first in the nucleus, subsequently in the protoplasm, and the cells gradually wither away without drawing in their processes or altering in shape. These appearances are seen to extend to a variable distance from the point of injury according to the severity of the latter; and in this part no changes are ever observed to occur in the branched cornea corpuscles except those of a degenerative nature. Now, it is in this degenerated zone surrounding the eschar, and in the eschar itself, that the pus corpuscles subsequently are most numerous; but, in the winter frogs, on which the experiments were made, the suppurative process takes place so slowly that the corneal cells have almost disappeared, and their remains can be seen only with powerful lenses and careful preparation before the pus corpuscles have reached the central part of the cornea. Outside this zone of degeneration, which the authors call the zone of vacuolation, the cornea corpuscles are unaltered, and can be seen along with the pus cells, which latter, all coming from without, travel through successive portions of the membrane from the periphery to the point of irritation in the centre. Hence, at the commencement of the process, pus cells are found only at the margins, and, at a later period, they accumulate about the centre, leaving the margins comparatively free, while, between times, they occupy intermediate positions. They are always more numerous in the anterior than in the posterior layers. When, instead of employing cauterization with silver nitrate, the cornea is made to suppurate by drawing a thread through the bulb, and so setting up a panophthalmitis, then the regressive changes in the cornea corpuscles are not observed, and in all stages of the suppuration, the pus cells can be seen together with the *unaltered* connective tissue cells of the part.

It will be seen that this account is, with the exception of the more detailed description of the degeneration of the cells, a mere repetition of that given by Cohnheim. I think the authors have done good service in calling greater attention than has hitherto

been given to the destructive changes produced in the corneal cells by the action of silver nitrate. These changes have been noticed by almost all observers, but they have not been dwelt on forcibly till now. I cannot, however, agree with the Swedish pathologists in their account of these changes. The vacuolation stated to have been so invariable in their observations I have not constantly seen, nor have the changes appeared to me to begin always in the nucleus. What I have seen has been a paleness and thin appearance of the cell, and a gradual disappearance of the network formed by the branching processes, and this, not by a drawing in of these processes, but, seemingly, by a solution of them *in loco*, very much as the author describes. But the nucleus could often be seen retaining its smooth contour at a time when all the protoplasm of the cell, except a few granules in the immediate neighbourhood of the nucleus, had disappeared. Even in these cases, with good lenses, the position of the former cell-processes could be seen as clear marks in the intercellular substance, which I looked on as the spaces in which the protoplasmic network formerly lay. Subsequently the nucleus itself disappeared, apparently by a process of simple atrophy, becoming more and more transparent and difficult to see, and finally vanishing altogether. At the same time, the intercellular substance often assumed a wavy, fibrillar appearance. The portion of the cornea so altered either did not stain at all with gold chloride, or assumed merely an uniform pale pink coloration. These changes stood in a manifest relation to the cauterization. They were not seen in cases in which a thread was passed through the bulb; they always occurred in immediate proximity to the eschar, and varied in extent according to the severity and extent of the latter. In small corneæ they often extended up to the margin, but usually a ring, more or less wide, was left between the zone affected by them and the corneo-scleral junction. In these latter cases what was observed in spring frogs, at periods varying from one to three days after the cauterization, was the following:—In the centre the brown eschar; outside this the zone of degenerated cells, containing few or no pus corpuscles, and destitute of formed elements except the fragmentary remains of the tissue cells; outside this again a zone of proliferation, in which the corneal cells were nearly all more or less altered, their protoplasm abnormally granular, their nuclei multiplied, their shape either fusiform or irregular, and presenting every transitional form between almost normal corpuscles and pus cells, which latter were

here abundant. But the pus cells were not here *in addition* to the cells of the tissue; they were, on the contrary, substituted for them, and the more numerous were the pus corpuscles, spindles, and many nucleated, irregularly-shaped masses, the fewer were the normal stellate cells, and in many instances over large tracts of cornea not a single branched connective tissue-cell could be found. Nor can it be said that if higher magnifying powers had been employed the normal cells would have been seen. The preparations were examined with good dry lenses of medium power, both English and foreign; and besides, in almost every instance, with immersion lenses of proved excellence (Nachet No. 7, and Hartnack No. 9), and if the stellate cells had been visible they could not have escaped observation.

Outside the zone of proliferation was a zone of tolerably abnormal corneal tissue, in which, however, the wandering cells were more abundant than in health. This description does not suit all cases; in some, as already said, the zone of destruction extended up to the margin of the cornea, and, under such circumstances, the pus corpuscles were comparatively few, and were evidently due to immigration—partly from the blood vessels, partly from the conjunctival sac through the corneal wound. In other cases the destruction was not so great, but the zone of proliferation extended to the scleral border, leaving no healthy cornea. These varieties in the extent of the several zones depended apparently on the size of the point cauterized in proportion to the size of the entire cornea, on the time after the injury at which the examination was made, and perhaps partly on individual differences in the animals which were submitted to experiment.

When the cornea was made to suppurate, by passing a seton through the bulb, the appearances were quite different. There was then no part of the cornea in which the destructive changes in the cells were seen. The proliferation began at the margin and extended towards the centre; but, in this case, as in the other, in proportion as the pus formed, the tissue cells disappeared.

It is unnecessary here to describe the transitional forms between the stellate cells and the fully-formed pus corpuscles, as I have already done so in a former paper.^a From this account it will be seen that my conclusions differ altogether from those of the authors of the work under consideration. They assume that Stricker, and

^a Loc. cit., pp. 162, et seq.

those who agree with him, have overlooked the remains of the corneal cells in the zone of destruction, and that the pus found in this zone has been derived by them from proliferation of the cells of this portion of the cornea. But this is not so; all the writers^a on this subject distinctly state that the cells about the eschar do not proliferate but die. I agree with Professor Axel Key that most writers understate the extent of this zone of destruction; but in it the suppuration is scanty, and the pus corpuscles irregularly distributed, while the remains of the tissue cells can be more or less distinctly seen, and transitional forms are, in general, absent. External to this, however, things are different. Here we do not find the withered remnants of old corneal cells, but any stellate cells which remain are plumper and more granular than in health, and often contain two or more neuclei—and in inverse proportion to the number of stellate corpuscles is the number of pus cells and transitional forms. This inverse proportion, the presence of the transitional forms, and the fact that the suppuration commences, and is most abundant, in the neighbourhood of the point of irritation, seem to prove that the pus is formed where it is found, and from the cells of the part. At the same time it is not at all denied that a certain number of pus cells come from without, but this number is small compared to that formed in the cornea itself. At no period in the case of central cauterization is the suppuration most abundant at the periphery of the membrane, except in those instances, already alluded to, where the zone of proliferation reaches the margin.

There is one circumstance mentioned by the authors which seems to make very strongly against the view they hold as to the origin of the cells found in the inflamed cornea. In describing these cells they say (s. 308)—“Their size is very variable from the largest with a number, up to a dozen, neuclei (cells which perfectly agree in all particulars with the descriptions and drawings of the protoplasm masses of Norris and Stricker,) to small cells which contain only one nucleus, and which are scarcely one-tenth the size of the former. Between these extremes are all gradations in point of size of the cells and number of nuclei.” Now, I am not aware that such variety exists among the white corpuscles of the blood. The leucocytes certainly do vary considerably in size, but not so widely that some are ten times larger

^a Hoffman, l. c. p. 208, Stricker & Norris, l. c. p. 12, Purser, l. c. p. 166.

than others, nor have I ever seen or heard of white blood corpuscles which contained a dozen nuclei. There is, besides, little or no evidence to show that extravasated white blood cells increase so enormously in size, or in the number of their nuclei, or that these large masses could be formed, as the authors suppose, by coalescence of small cells. It is much more reasonable to assume that these large multi-nucleated masses were formed in the cornea from the cells of the part in the manner described by Stricker.

The authors think that the blood origin of these masses is proved by their active movements and their power of not only altering their shape but also of "wandering." But the degree of movement which cells are seen to possess when under the microscope cannot with any certainty be used as a means of diagnosis, for very slight alterations in the surroundings will cause great differences in the activity of motion in the cells, and it is impossible always to be sure that different preparations are examined under precisely similar conditions. The character of the protoplasm is another uncertain diagnostic mark, for, as Beale says, there is no discoverable microscopical or chemical difference between the protoplasm of one young growing cell and that of another, although these may have widely different origins and destinies.

Nor is the presence of coloured particles in cells, after the injection of vermillion or aniline into the circulation, a certain indication that those cells have been derived from the blood. Stricker (*loc. cit.*, s. 14) has seen particles of aniline in branched corneal cells, and the researches of Reitz^a have made it probable that coloured particles can move about through the organism independently of the wandering cells. The coloured particles might have been carried into the cornea in the same ways as were the red corpuscles which the authors themselves found in the membrane when the inflammation was intense.

The objection that in the cases in which endogenous cells formation was observed in the corneal corpuscles, the new cells lay *over* the branched element and not *in* it, has not much weight. Error of this kind might be committed if the observations were made only with low power but with immersion lenses and careful management of the fine adjustment, such mistakes are not likely to occur. I have frequently seen portions of the protoplasm of a corneal cell altered in character so as to resemble that of the wandering cells or pus

^a Henle and Meissner's Bericht, 1868, s. 24.

corpuscles, while the remainder, containing the characteristic nucleus, was but little affected, but I have never seen appearances like those figured by Forster^a or described by Hulke,^b and, while I do not deny the occurrence of endogenous cell formation in keratitis, I think cell multiplication by division is much more common.

It will be seen from the foregoing remarks that the whole question of cell-proliferation, which lies at the very basis of pathology, is still in the most unsettled state, and that, notwithstanding the amount of labour that has already been bestowed upon it, it will require a great deal more work before it can be brought to a satisfactory solution.

^a Atlas Taf. xxxiii.

^b Henle and Meissner's Bericht, 1869, p. 20.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

On the Restoration of Health; being Essays on the Principles upon which the Treatment of many Diseases is to be conducted. By THOMAS INMAN, M.D., Lond. Second Edition. London: H. K. Lewis. 1872. Pp. 567.

To judge by his writings alone, Dr. Inman is a man of wide reading and considerable versatility of power. He has written on various subjects, from myalgia and spontaneous combustion to antiquities and theology, and his independent sentiments, which mark honesty of purpose, are expressed with a frankness and candour which entitle them to respect.

This volume consists of a number of detached essays, which, for the most part, originally appeared in the *Medical Mirror*, in 1868 and 1869; and while they seek to be suggestive rather than exhaustive, they are certainly not merely wearisome compilations.

The author aims at brevity, and writes in an easy and yet forcible manner, nor does he think an apposite story beneath the dignity of his pen, for the book is thickly studded with pointed anecdotes and well-told cases. An ardent foe to shams, and an enemy to every form of humbug, he shows himself a man of trained thought and habitual industry, and all through life it has been his endeavour to free himself from the trammels of prejudice. "It is contempt for the laws of evidence which makes men bigots in medicine, theology, and political economy—even, we may add, sometimes in science." A shrewd observer, and abounding in quaint illustrations, which are drawn as a rule from common experience, we cordially agree in his conclusion that, in our present state of haziness, the life of the physician becomes, to a great extent, one of close observation, mingled with scientific empiricism.

It is not easy to review connectedly a book presenting such an *olla podrida* to the reader's mental digestion, with some of the

dishes dressed with piquant sauce, and we shall, perhaps, best do the author justice by letting him appear for himself in one or two instances.

For example, in speaking of the blight which overtakes a child with water on the brain, possibly due to hereditary disease, he remarks:—

“I believe that ‘life’ may be ‘hoarded.’ I hold the opinion that a man and woman who marry without having any such treasure will pre-side over a house bankrupt in point of health. How, let us ask, can those who procreate with one foot in the grave, as it were, hope to have offspring exempt from decay? The medical history of everybody really begins long before birth; and I feel sure that it is the part of that bio-graphy which is always suppressed—except in such cases as that of Tristram Shandy—that accounts for many a premature death from brain disease.”

And again, in commenting on the injurious effects of foul air and over-crowding, he draws attention to the importance of recognizing the influence of *transpiration* as well as of respiration, in rendering air unwholesome:—

“Crowding horses together produces glanders; packing negroes closely, as in a slaver’s hold, gives rise to dysentery, and those who escape death, and are sent into hospital, communicate typhus to their nurses. In the crowded holds of sailing ships that carried multitudes of Irish, during the famine year, to America, typhus broke out, and was as deadly as the disease in African slavers. It is our duty to investigate the cause of these affections; are they due to air made foul by respiration or by transpi-ration? The first cause has been inquired into, but not the second. I assert as a fact, that the skin of every one secretes, produces, or exhales a gaseous material, which, if it is not allowed to escape—as for example by covering the skin with some impermeable material—gives rise to cuta-neous inflammation. It is to get rid of this that housewives so carefully turn the bed-clothes down after they have left their couch, and air the room. If a sick body lies during many hours between the sheets, he or she becomes uncomfortable until the space between them has been venti-lated. Every one who has worn a mackintosh during the day, will be able to remember the comfort experienced on taking it off. It is the inhalation of this material that I fancy has, when there is overcrowding, most to do in producing fever and other diseases.”

While speaking of metallic poisoning, he remarks, in reference to lead:—

“When the palsy arises from the presence of lead, a course of such medicaments as iodide of potassium or the bromide of the same base is desirable, for both of these appear to have some influence, although a very small one, in decomposing the comparatively stable compound, made between flesh and some of the many salts of lead. One of the severest forms under which what is commonly designated lead palsy appears is ‘wrist drop,’ in which the patient loses all power over the extensor muscles of the fore-arm, and is thus unable to raise his hands to grasp anything. The flexor muscles are affected at the same time, but not to the same degree; so that, if by any contrivance a substitute can be found for the flexors (extensors?), the hands can be made useful as before.”

He judiciously recommends the support of the palsied hand by an elastic india-rubber apparatus, so as to avoid the evil of overstretching the extensor muscles; and, in regard to other local treatment, speaks well of shampooing, electricity, and the use of rubefacient liniments, so as to bring an increased afflux of healthy nutritive blood to the withered tissues. His observations on the treatment of consumption are extremely sensible. He, of course, admits the value of cod-liver oil as an easily digested esculent; but puts even greater faith in another old-fashioned diet, viz., milk, combined with spirit of some kind, and he has known individuals live for a twelvemonth upon a quart of milk and three ounces of rum per day, and recover their health perfectly without taking anything else, or altering their daily routine. Each year that his experience runs on it has taught him to respect this diet more deeply. He rightly lays strength on the paramount value of hygienic measures in the treatment of phthisis, and he believes that while, without attention to these, medicine is powerless to cure, it is a matter of grave doubt whether drugs, even tonics, are admissible in ordinary cases of consumption. The stomach generally has enough to do to fulfil its functions of digestion, and he is so opposed to overtaxing this enduring organ that a favourite maxim with him in consumption is, “keep the stomach for food, the rectum for physic, and the skin for oil.” By the latter phrase is meant the ancient Celsian practice of rubbing oil into the skin by diligent friction, a method which the author has largely tried and warmly eulogizes, especially in cases of phthisis or general debility.

A pet subject with the author is *myalgia*, by which he means muscular or tendinous pain, and to which he devotes but a small space in the present volume, having already published a separate

copious treatise on it. Considerable difficulty attends its true interpretation; but it seems to us that Dr. Inman has fairly won for this complaint a definite position in nosology, and he has shown the important relations it bears therapeutically to many painful affections which are so loosely classed together as “rheumatic,” or as due to “spinal irritation.” From a review of the leading points connected with muscular physiology he lays down as principles of treatment the following considerations:—

1°. If the muscles are overworked give them rest in the first place, diminish the work which they have to do in the second, and, if that be impracticable, we should endeavour to increase their power to do it.

2°. Next to rest comes warmth, local and general, and such an amount of shampooing, with stimulants like turpentine or mustard, as shall bring an increased amount of blood into the weakened parts.

3°. If the muscles are unusually sensitive use morphia hypodermically, endermically, or by inunction.

4°. In other cases, where these means prove useless, we must resort to other remedies, such as bandaging or strapping, shampooing, &c.

In abdominal myalgia, with feeble muscles and a pendulous belly, mechanical support by a binder or elastic belt is of great service. For his lady patients he finds “that a well-cut pair of trousers, made like those which equestrian ladies wear under their riding habits, answers better than the old-fashioned roller towel.” They should be laced in front; and he has often made his female clients laugh by his orders that they were literally “to wear the breeches.” On hysteria Dr. Inman takes a decided stand against the false and prurient theory that the complaints of “hysterical” girls have a purely sexual origin, and expresses his belief that there is not in all medical history a more melancholy chapter than that which treats of hysteria. He can hardly write calmly when he thinks of the “obloquies heaped upon our females in certain medical works; indignities, indeed, unsupported by a tittle of valid evidence, and which ought to have been more than counterbalanced by our general knowledge of the gentleness, patience, endurance, and long-suffering of women.” Nervous and anomalous symptoms in women, which are so frequently dubbed hysterical, have, in the author’s opinion, no more to do with the womb than they have with a

woman's curls, and what is called hysteria in a woman no more depends upon the uterus than gout in a man does upon his whiskers. But such mischievous views are, happily, now losing ground.^a

To sum up, we regard Dr. Inman's book, so rich in acute observation and sound deduction, as a sensible and thoroughly refreshing work, healthy and vigorous in its style and opinions, and well deserving the attentive perusal of all those who desire to rise above the ranks of mere drug-dispensers and the meanness of quackery. If independent thinkers like Dr. Inman were more common or better appreciated than they are, and if principles of treatment were deduced not so much from vague tradition and blind mimicry as from cultivated experience, we should have less of the crude and flashy writing that we are now burthened with, less twaddle and aimless speculation, and our patients would gain the benefit of more sound sense in the rational treatment of their ailments.

Clinical Lectures on the Diseases peculiar to Women. By LOMBE ATTHILL, M.D., &c. Second Edition revised and enlarged. Dublin: Fannin & Co. 1872. Post 8vo. Pp. 241.

WE are glad to find the very favourable opinion we expressed of the first edition of this work endorsed by the profession, who within the short period of twelve months have called for a second edition. In the preface the author tells us he has by a careful revision endeavoured to render the present edition more deserving than the previous one of the favourable reception accorded to it, and we can bear testimony, after examination, that he has done this carefully and thoroughly. He further states that he has not found it necessary to retract or even to modify materially his views as to any treatment already advocated. Time has only confirmed, in his own mind, the correctness in the main of his previous teaching, and this is more especially so, he goes on to say, as if in emphatic reply to certain strictures on his former edition, with respect to the use of nitric acid when applied to the interior of the uterus, a mode of treatment which he is confident will yet be practised as extensively by other obstetric surgeons as it now is by those of the Dublin school. The first record of the application of

^a Dr. Inman appears to ignore the important relations which the ovary bears to the health of females.

nitric acid to the interior of the uterus is contained, we believe, in a paper published in this journal, by Dr. Kidd, in February, 1869. In this paper Dr. Kidd states that he used it at the suggestion of Dr. Ringland, who had long previously suggested its use in the treatment of certain conditions of the os and cervix. A reviewer of the first edition of Dr. Atthill's Lectures expresses a doubt that nitric acid was ever applied to the interior of the uterus, and indulges in a vein of pleasantry on the subject; but we can assure this writer that it has not only been used by Dr. Atthill, and by Drs. Kidd and Ringland, as we have described, but also that its use is not confined to those gentlemen, and has in fact become general in Dublin. We have, moreover, good reason to know that it is as serviceable and safe in the treatment of certain conditions of the uterus attended with hæmorrhage as it is in the treatment of analogous conditions of the rectum, for which its use is now almost universally adopted, a mode of treatment which also had its origin in the Dublin School.

In the present edition some of the subjects formerly treated of are entered into more fully, and some others are added. Several new illustrations are introduced, and we have no hesitation in reiterating our opinion that we have in these lectures a concise and valuable compendium of the present state of our knowledge of the more important and common diseases of women; and that in them the student will find a most excellent guide to the clinical study of these diseases, and the practitioner trustworthy directions for their treatment on sound and scientific principles.

A Text-book of Pathological Histology; an Introduction to the Study of Morbid Anatomy. By Dr. EDWARD RINDFLEISCH, O.O.; Professor of Pathological Anatomy in Bonn. Translated from the Second German Edition, with permission of the author, by WILLIAM C. KLOMAN, M.D., assisted by F. T. MILES, M.D., Professor of Anatomy, University of Maryland; with two hundred and eight illustrations. Philadelphia: Lindsay and Blackiston. London: Trubner and Co., 60, Paternoster-row. 1872.

FEW more acceptable services could be rendered to the student of pathology than the publication of a translation of Rindfleisch's valuable work. Unfortunately, for the utility of the present

version, it cannot become, in any considerable degree, popular, owing to the very serious defects to be found in its execution. It is not too much to say that in several places the language employed would be not much more intelligible, to an ordinary English student unacquainted with German, than that of the original work. The structure of many of the sentences is so foreign to the construction of the English language, that it requires an effort of ingenuity to discover the meaning which it is intended to convey. It is unfortunate that so much labour and energy should be so employed as to miss its legitimate recompense in the production of a useful and successful work, and that the translator, who is, himself, evidently a foreigner, should not have availed himself of some efficient assistance in the task of presenting this important work in an English dress.

Those, however, who are not deterred by the difficulties we have mentioned, will find that this work contains a mine of information on the subjects of which it treats. All the more important questions which have been raised by the progress of pathological research, are discussed in a careful and generally in an eminently judicious manner, and there are also the results of much valuable original research prosecuted during many years by the author, himself one of the most eminent German histologists. The illustrations are also good and well chosen, and the book handsomely brought out.

PART III.

HALF-YEARLY REPORTS.

REPORT ON MEDICINE.*

By JAMES CUMING, M.A., M.D.; Professor of Theory and Practice of Medicine, Queen's College, Belfast; Physician to the Belfast General Hospital.

ON NUTRIENT ENEMATA.

IT has often been a matter of no inconsiderable difficulty to practical physicians to select the best ingredients for nutritive injections. The cases, in which this method of administering nourishment is necessary, are usually of a very distressing character, and commonly end fatally; and it becomes a question of much importance how far the fatal termination can be said to be postponed by such means. In œsophageal cancer, in cases of poisoning by corrosive substances, and in some diseases of the stomach and primæ viæ, nourishment cannot be introduced or absorbed into the system by the usual channels, and in cases of gastric ulcer it is of great importance to give the stomach absolute rest for as long a period as possible; and accordingly attempts are commonly made under such circumstances to support the system by injections. The components of such injections recommended by Dr. Foster, of Birmingham, whose paper on the management of gastric ulcer is one of considerable value, are strong, unsalted beef-tea, milk, eggs beaten up with milk, with occasionally a little brandy and a few drops of laudanum. The value of an injection administered for the purpose of nutrition depends not only on the extent to which its constituents will be absorbed by the large intestine, but in a great measure also on the length of time which it can be retained. Substances, no matter what their nutrient value may be, which irritate the bowel, will be expelled too quickly to permit absorption to occur, and will probably add to the danger and sufferings of the patient by provoking diarrhœa.

* The author of this Report, anxious that every contribution to Pathology and Practical Medicine should be noticed, will be glad to receive any publications on these subjects. If sent to correspondents of the Journal they will be forwarded.

Various observers have investigated the subject of absorption from the large intestine. Among the most recent observations are those of Eichhorst.^a He states that the secretion of the large intestine acts only mechanically in the direction of facilitating the onward progress of the intestinal contents. Some digestive efficacy had been attributed by several previous authors to the secretion of this part of the bowel. Eichhorst states, however, that without their having been necessarily subjected to any previous digestive process in the intestine certain substances are more or less absorbed. Among these are some of the peptones, the expressed juice of raw meat, the albumen of milk, egg-albumen when mixed with salt, and Liebig's extract of meat. On the other hand, unsalted egg-albumen, the albumen of blood-serum, fibrin, syntonin, and myosin are not at all absorbed.

The subject has been also investigated by Leube,^b who has given a careful and judicious appreciation of what is necessary for a clinically useful nutrient fluid. Egg-albumen with salt is, he points out, liable to two objections—firstly, it is liable to cause diarrhœa; and secondly, its injection into the rectum is commonly followed by the appearance of albumen in the urine. This latter circumstance had been previously noticed by Eichhorst, and although it probably is not attended with much risk to the kidney, still it cannot be regarded as a matter of indifference. With respect to milk, Leube points out that this fluid very often returns quite unaltered, and that its use is in many instances followed by the appearance of sugar in the urine. Still it is regarded as being more valuable than eggs. Peptone solutions had been strongly advocated by Meissner, and by Voit, and Bauer. The directions given by Meissner for the preparation of a solution for this purpose are, to digest from half a pound to a pound of meat with a gastric juice, containing certain proportions of hydrochlorine and pepsine for twelve hours, at a temperature of 104° F. (40° C.). The solution is then filtered, and parapeptone is precipitated by cautiously neutralizing the acid solution. It is evident that however theoretically perfect the solution might be, and however fitted for easy absorption, the great care and skill requisite for its preparation makes it altogether unsuited for the necessities of medical practice. The expressed juice of meat is open to the objection that it is apt to cause diarrhœa, and, in addition, so small a proportion of juice is got

^a Pflügers Archiv. für Physiol. iv., p. 570.

^b Archiv. für Klinische Medicine, Bd. x., s. 1.

from meat that its price comes to form a serious drawback to its general employment.

As a better nutritive injection than any of these, Leube recommends a mixture of very finely-minced raw meat with about one-third of its weight of the pancreas of an animal—either that of an ox or that of a pig. To this lukewarm water is added in sufficient quantity to make the whole into a pulpy consistence. This latter part of the process requires some time and attention, inasmuch as the material to be used must pass through an injection apparatus. The addition of fat in the preparation of about one-sixth of the meat is in some cases an advantage. A larger proportion of fat than this has a tendency to cause too early evacuation of the contents of the intestine. A mixture of this kind is, according to Leube, in a great degree digested in the intestine, and by means of it a considerable amount of nitrogenous material is introduced into the system. If starchy substances are added to the mixture they are changed so quickly into sugar by the action of the pancreas that slight diarrhœa is brought about. He found that after the employment of these injections more nitrogen was excreted by an animal deprived of nitrogenous food than had been excreted previous to their use. He found, also, that injections such as we have mentioned preserved the equilibrium between the consumption and the excretion of nitrogen, when an animal was deprived of a portion of the nitrogenous food which it had been accustomed to receive by the mouth; and, finally, a quantitative examination of the fæces supplied direct evidence of the absorption, by showing that the amount of nitrogen in them was less than what had been introduced into the intestine. From these facts Leube considers himself entitled to state that a real digestion of meat takes place in the rectum and colon by the aid of the pancreatic juice furnished by the substance of the pancreas, and that the products of this digestive process are absorbed in considerable quantity into the blood. This mode of nutrition has been employed in three cases with apparently great benefit. Of these one was a case of catarrh of the stomach, with severe vomiting and cancer of the peritoneum; another was a case of cancer of the stomach; and the third was a severe case of accidental poisoning by tincture of iodine with great corrosion of the stomach. In the last case, which is one of great interest, there could be no doubt of the nutritive value of the injections, the patient having been, in May of this year, about six months after the poisoning, able to be up during the whole day,

although still requiring the use of the injections recommended by Leube.

The general conclusions at which Leube arrives are, that the injection into the rectum of finely chopped meat mixed with the finely chopped substance of the pancreas, hardly ever produces diarrhœa. The injection is retained commonly for from 12 to 36 hours. An enema of water must be always given before the nutritive one. This precaution ought to be taken even if the bowels had been spontaneously moved soon before the time for the administration of the enema. It is better to allow an interval of a day to elapse before repeating the injection, if, after having been for a period well borne, evacuations of the bowels begin to occur soon after its administration. The patient, after this species of injection, is said to experience no uncomfortable feeling, no weight or pain in the abdomen; on the contrary, the sensation of emptiness diminishes, hunger becomes less urgent, and the pulse becomes fuller.

DIAMETER OF THE ARTERIES IN DISEASE.

Professor F. W. Beneke,^a in Marburg, has opened a very interesting inquiry regarding the predisposing causes of disease. He suggests that a tendency to lesion in particular parts of the body may be dependent on a relatively small size of the arteries supplying the part.

Rokitanski has described a congenital anemia depending on the vascular system being abnormally small and accompanied by defective development of the generative organs, especially in females. Virchow observed that in chlorosis the diameter of the arteries was often abnormally small. Lebert states that narrowing of the pulmonary arteries at their origin has a distinct tendency to produce pulmonary tubercle.

The method according to which Beneke measured the vessels was by making a longitudinal section, then opening out the artery on a flat surface, and carefully measuring its inner circumference.

Beneke found that considerable variations occurred in the size of the vessels. Dividing the cases into three classes, large, medium, and small, he found that pulmonary consumption was much more frequent in the last class, that in the medium the proportion of cases of this disease was greater than in the class in which the diameter of the vessels was large, and less than in that in which the

^a Jahrbuch für Kinderheilkunde, N. F. iv., s. 380.

diameter was small. Thus, with regard to the relative frequency of consumption, he framed the following table:—

Total number of Cases.		Cases of Pulmonary Consumption.
41	Small diameter of ascending aorta,	- - 11 cases.
45	Medium " "	- - 8 "
10	Large " "	- - 1 "
24	Small " descending thoracic aorta,	- - 8 "
52	Medium " " "	- - 5 "
37	Large " " "	- - 6 "
37	Small " abdominal aorta,	- - 10 "
27	Medium " " "	- - 4 "
17	Large " " "	- - 2 "
32	Small " pulmonary artery,	- - 9 "
49	Medium " " "	- - 9 "
15	Large " " "	- - 2 "
18	Small " left carotid,	- - 10 "
42	Medium " " "	- - 6 "
19	Large " " "	- - 1 "
25	Small " left subclavian,	- - 10 "
25	Medium " " "	- - 7 "
19	Large " " "	- - 1 "

These results are remarkable, and lead to the supposition that abnormally small size of the arterial vessels has some share in the etiology of pulmonary consumption; of course the question will naturally arise, how far this diminished size of the vessels can be shown to be antecedent to the appearance of the malady in question, and whether it may not, in some degree, be a consequence of diminished nutrition. At the same time, the point is certainly deserving of attention.

ON URÆMIA.

Some interesting additions have been recently made to the already copious literature of uræmia. It is a remarkable fact that, although innumerable observations and experiments have been made to determine the cause of the well-known uræmic poisoning, and although with regard to many incidental points regarding it our knowledge has been greatly advanced, still the central problem in the causation of uræmia remains as yet unsolved. We seem not much nearer the determination of the question, whether uræmia is caused by the presence of an abnormal amount of urea in the blood, than we were at the time of the earliest experiments on the subject.

The subject is one of great practical importance, because on the elucidation of it depends our hope of being able to deal with the phenomena of uræmic poisoning with any reasonable prospect of success. Every physician of experience has met with cases in which the most formidable uræmic symptoms proved to be only transitory, although undoubted organic disease of the kidney existed. And it must be admitted that our therapeutic resources do not always enable us to claim much share in the favourable issue in such cases. Nevertheless their frequent occurrence gives ground for the expectation that we may ultimately be enabled to aid in promoting the temporary amendment which we so often witness in Bright's disease. It becomes accordingly a matter of great moment to ascertain to what change in the blood, or in the tissues, the phenomena of uræmia are to be ascribed. The first great problem is, to determine what is the part played by urea in the production of the symptoms in question. There can be no doubt that urea is the principal element in the urinary secretion, and for a considerable period it was naturally regarded as the most important factor in the production of uræmia. It was clearly impossible to arrive at a conclusion on the subject merely from clinical observation, and resort was had to physiological observations and experiments on the lower animals, for the purpose of ascertaining whether urea accumulated in the blood when the kidneys are removed. The first experimental attempt at a determination of this problem was made by Prevost and Dumas, who communicated the results at which they had arrived in a paper which was read at a meeting of the *Société de Physique et d'Histoire Naturelle* of Geneva, in November, 1821.^a The method adopted by these observers was to examine the blood of animals in whom the kidneys had been removed. They found that dogs, cats, and rabbits, survived the removal of their kidneys for from five to nine days, and that during the first three days after the operation they showed scarcely any sign of disturbance. On examination of blood taken from these animals they found evidence of the presence of a considerable amount of urea, no trace of which they had been able to discover in the blood of animals who had not been subjected to this operation. From these experiments they came to the conclusion, as had before been suggested by Rollo, that the kidneys merely eliminated urea from the blood, and had nothing to do with its

^a The paper was published in the "*Annales de Chimie et de Physique*," par Gay-Lussac et Arago. Toome 23, p. 90.

formation. Nephrotomy had been previously performed by Vesalius and by Richerand, but neither had employed chemical analysis for the purpose of determining the condition of the blood. Prevost and Dumas suggested that probably the liver was intimately concerned in the production of urea, an idea which they founded on the supposed diminution of urea in the urine in cases of chronic hepatitis. Richerand, also, having found in his nephrotomized animals the gall-bladder considerably distended, thought it probable that the biliary secretion could to some extent take the place of the urinary, when the latter was suppressed.

The paper of Prevost and Dumas has always been considered, and with justice, one of the most important contributions to this subject which has been made, and from it it seemed probable that urea, as the principal solid constituent of the urine, was also the principal cause, by its retention in the blood, of the peculiar aggregation of symptoms which have been grouped together under the name of uræmia; for there is every reason to believe that in advanced cases of Bright's disease, the kidney, as far as its function is concerned, is almost altogether useless. Prout^a taught that it was universally admitted by physiologists that the kidneys are little more than the outlets by which, as an excreted principal, urea is removed from the economy. He gave it, however, as his own opinion, that in the healthy condition of the system imperfectly developed urea may be found in the economy, which, in subsequently passing through the kidneys, is reduced to the crystallized form; so that the kidneys are not to be regarded as entirely passive in the matter.

Very soon after the observations of Prevost and Dumas, Segalas and Vauquelin showed that urea could be injected into the veins of animals without giving rise to any symptoms of disturbance beyond diuresis; and, as a consequence of these experiments, great expectations were formed of the value of the administration of urea as a diuretic. It was suggested by those observers and has been supported by Stokvis, Hammond, and others, that some of the injurious effects of the suppression of the renal secretion are to be attributed to other constituents of the urine, and that the extrac-tives especially have much to do with them, so that the apparently anomalous conclusion has been arrived at that suppression of the urinary secretion brings about fatal effects, not in virtue of its

^a On the Nature and Treatment of Stomach and Urinary Diseases. Third edition. 1840, p. 97.

principal constituent being retained in the system, but because of the non-excretion of substances certainly in a physiological sense much less important.

From a clinical point of view Bright, Owen Rees, and Christison pointed out that a large amount of urea might be present in the blood without any symptom of uræmic poisoning being present. Christison^a dwells forcibly on the fact that he had repeatedly had occasion to remark the absence of any affection of the head, notwithstanding that the blood was, so to speak, poisoned with urea, in the advanced stage of granular disorganization of the kidney.

Frerichs proposed an explanation of these facts which was ingenious, and which he claimed to have demonstrated by clinical observations as well as by physiological experiments. The phenomena of uræmic poisoning are not, according to Frerichs, caused either by urea itself or by any other constituent of the urine, but occur when the urea which is accumulated in the blood is changed within the vessels by means of a peculiar ferment, into carbonate of ammonia—a transformation which readily occurs, as is known, outside of the body. It is this carbonate of ammonia which causes the morbid phenomena; and it is possible, according to Frerichs, to produce the symptoms of uræmia by the injection of carbonate of ammonia into the veins. So that for the production of uræmia two things are necessary—firstly, an accumulation of urea in the blood; and, secondly, the presence of a ferment capable of decomposing it. If no ferment is present, a large quantity of urea may exist in the blood without any morbid symptom being produced.

This explanation found many supporters after its first publication, but is now pretty generally discredited. Clinical observation has not confirmed the statement of Frerichs regarding the invariable existence of a notable amount of carbonate of ammonia in the expired air in fatal cases of uræmia, and experiments on the effects of the artificial introduction of urea have also gone to contradict this theory. A modification of Frerich's theory, proposed by Treitz, to the effect that the supposed decomposition of urea into carbonate of ammonia takes place, not in the blood but in the intestinal tract, and that carbonate of ammonia is thence absorbed into the blood, met with some acceptance, especially as it fell in with a highly

^a On Granular Degeneration of the Kidneys. Edin. 1839, p. 230.

important discovery published by Bernard and Barreswil,^a in 1847, regarding a mode in which urea is occasionally excreted. On the basis of numerous and highly interesting experiments these observers stated that after nephrotomy has been practised on an animal, urea does not immediately undergo an increase in the blood, owing to the fact that the stomach and the small intestine take on a vicarious action and secrete urea. Once, however, excreted into the cavity of the primæ viæ, urea becomes rapidly changed into carbonate of ammonia, so that no urea can be found after the death of the animal. The objections, however, to the theory of Frerichs are equally valid as against that of Treitz.

A different explanation of the formation of urea was offered by Oppler and by Zalesky, each of whom conducted an independent set of experiments in the laboratory of Hoppe-Seyler, and also by Perls;^b all of these observers agreed that urea is not increased in the blood after the extirpation of the kidneys, but that it is greatly increased after ligature of the ureters, the increase being greatest in from 24 to 28 hours after the operation, and that the extractives and creatine are also much increased after ligature of the ureters.^c

It has been objected to the value of this method of experimenting that ligature of the ureters does not give rise to true uræmia, but by causing the urine to be retained in the body, promotes its decomposition and reabsorption into the system.^d This distinction has led Vogel^e to suggest that a distinct name should be given to cases of this kind, and he has proposed ammoniaemia to designate these, while uræmia would be reserved for those cases in which the secretion of urine is diminished or suppressed.

These experiments and observations seemed to have settled the question, and the opinion accordingly was adopted that the kidneys

^a Archives Gènèrales de Médecine.

^b Qua via insufficientia renum symptomata uraemica efficiat, quoted by Falek, Virchow's Archiv., Bd. 53, S. 335.

^c The conclusions of Perls are as follows :—

“Qui numeri hæc docent :

“(1) In bestiis, quarum renes erant excisi, ureae accumulationem non observavi ; in iis, quarum ureteres subligati erant, ureae copia aucta erat maximaque inter 24—28 horas post operationem factam videbatur esse.

“(2) Copia extracti aquosi post operationem crescit.

“(3) Copia Kreatinini et omnino et praesertim cum extracto aquoso, in quo salia diversa insunt, comparata magnopere crescit.”

^d Rommelaere, de la Pathogenie des symptomes uremiques. Bruxelles, 1867, p. 4.

^e Handbuch der Pathologie und Therapie. Erlangen, 1856-65, S. 458.

really formed the urea which appears in their secretion, an explanation which is, it will be seen, directly opposed to that of Prevost and Dumas. Unfortunately, however, we are again met by a number of contradictory results. Meissner found that there was a notable increase of urea after extirpation of the kidneys, and he accounts for the contradictory results obtained by Zalesky by regarding them as exceptional and caused by the vicarious action of the mucous membrane of the stomach and small intestines, separating the urea, which is no longer excreted by the usual channels.

A good deal of interest was excited by the statements originally made by Heinsius and Stockvis, and confirmed by Meissner, that the liver in mammalia contains urea. Heinsius stated that in a liver removed from the body and kept at a temperature of 40° for 20 hours, urea was found in greater quantity than in the liver immediately after its removal.

On the other hand Gscheidlen^a made a number of comparative experiments from which he came to a conclusion opposed to that of the observers we have named. He found urea in the liver, but not in greater amount, relatively, than in the blood. He found it not only in the liver but in the spleen, kidneys, lungs, brain, and in the lens and the aqueous and vitreous humour of the eye. On the other hand, he never found any trace of urea in the muscles under normal circumstances. A fact which, if verified, would lead to important conclusions.

Some ingenious observations have been made by Rosenstein,^b well known by his valuable work on Diseases of the Kidneys, for the purpose of throwing light on this subject. It has long been known that when one of the kidneys is either congenitally absent, or has been destroyed by disease, an increase takes place in the bulk of the remaining organ. In so far as any definite opinion can be said to exist on the subject it would seem that the increased bulk of the remaining kidney is regarded by pathologists as depending on an increase in the secreting structure of the kidney. Valentin,^c who investigated this subject experimentally, came to the conclusion that in animals in whom one kidney had been removed the remaining kidney exhibited the maximum of increase in the convoluted tubes; the pelvis, the straight tubes, and the ureters being

^a (Leipzig Engelmann, 1871) Prager Vierteljahrschrift.

^b Virchow's Archiv. Bd. 55, s. 141.

^c De Functionibus Nervorum Cerebraliū et Nervi Sympathici, p. 148.

also dilated, and an additional amount of blood being present in the kidney.

Paget^a says that when one kidney is destroyed the other kidney enlarges; "more renal cells develop, and discharge, and renew themselves; in other words, the existence of the constituents of the urine in the blood that is carried to every part determines the formation of the appropriate renal organs in the one appropriate part of the body."

It occurred to Rosenstein that, from the condition of the convoluted tubes, which are the true secreting parts of the kidney, in animals from whom one kidney had been removed and who had survived the operation for some time, some information might be derived as to the function of the kidney as regards the production of urea. He found that the increase of the remaining kidney was mainly an increase of weight, and in a less degree an increase of volume, and that there was no increase in the malpighian bodies or in the convoluted tubes. The greater weight of the kidney depends on an increased amount of fluids being present in it—namely, blood, lymph, and urine, and on a thickening of the tissue elements, caused by increased nutrition, but only in a very slight degree on a real increase in the epithelial cells or in the connective tissue. The increased functional activity of the enlarged kidney completely compensates for the loss of the other, both as regards the secretion of the urine and as regards the formation of urea. From these facts Rosenstein draws the deduction that the kidney takes no part in the formation of urea. In one animal he found that the amount of urine and of urea was almost exactly the same before and after the extirpation of one kidney, and that when the second kidney was removed three days after it showed but a very slight increase in bulk and in organic contents. He concludes, accordingly, that no increase of secreting substance can have taken place in such a short time, and from the fact that both urine and urea were undiminished, that the kidney cannot be the efficient agent in the formation of the latter; so that we return to the view of Prevost and Dumas again, as confirmed by the very latest experiments on the subject.

^a Lectures on Surgical Pathology. Ed. by Turner. London. 1863. P. 19.

HALF-YEARLY REPORT ON PUBLIC HEALTH.^a

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THE PUBLIC HEALTH ACT OF 1872.

ON the 10th of August, 1872, the Royal assent was given to a most important measure of the legislature, entitled "An Act to amend the Law relating to the Public Health," or to give it its shorter title, the "Public Health Act, 1872." The "Bill" upon which this Act was founded was prepared and introduced by Mr. Stansfeld, but it included several important clauses which were expunged during the passage of the Bill through both Houses of Parliament. The expurgated clauses, in our opinion, should have been retained, though a few of them required some modification. They dealt with such important matters as the pollution of rivers and other sources of potable waters by town sewage, and refuse matters from manufactories, the water supplies of towns and rural districts, the providing of hospital accommodation and other relief for the sick, the analysis of articles of food, drink and drugs, and the increased punishment of persons convicted of the offence of adulterating food, &c.; they also referred to several serious kinds of nuisances. These clauses were struck out of the Bill, usually on a division following a prolonged debate. There is little doubt but the most valuable portion of Mr. Stansfeld's Bill was rejected, but sanitarians must feel rejoiced that even an instalment of long promised sanitary reform has been granted to them this year.

The new Public Health Act extends only to England and Wales, excluding the metropolis. The whole country is to be divided into sanitary districts of two kinds, namely, urban and rural, and to be subjected to the jurisdiction of local authorities termed in the Act "Urban Sanitary Authorities" and "Rural Sanitary Authorities." The urban authorities are :—(1.) The

^a The author of this report will be glad to receive any books, pamphlets, or papers relating to hygiene, dietetics, &c. They may be forwarded through the agencies of this Journal.

Councils of Boroughs; (2.) The Improvement Commissioners of Elective Improvement Act districts, constituted as such before the passing of the Act, and having no part of its area situated within a borough or local government district; and, (3.) The Local Board of Local Government districts constituted either before or after the passing of the Public Health Act, 1872, and having no part of its area within a borough or elective improvement district.

If, however, any of the above-mentioned districts are wholly included in another district of larger area, they are for sanitary purposes to be absorbed into the latter.

Where a Borough or an Elective Improvement Act district is coincident in area with a Local Government district, it is to be an urban sanitary district, and the Council or Improvement Commissioners, having jurisdiction over such borough or district, and not a Local Board, will be the sanitary authority.

Where any part of an Elective Improvement Act district is situate within a borough or Local Government district, or where any part of a Local Government district is situate within a borough, the Local Government may, by provisional order, constitute the remaining part of such Elective Improvement Act district or Local Government district a separate urban sanitary district, and may determine the mode in which such Improvement Commissioners or Local Board are to be elected, so as to provide for the proper representation of such part of the Elective Improvement Act district or Local Government district as is constituted an urban sanitary district:

Cambridge, Oxford and a few other towns are dealt with exceptionally, with regard to the terms borough, &c.

6. The area of a rural union, with the exception of those portions (if any) of the area which are included in urban sanitary districts, is to form a rural sanitary district, and the guardians of the union are to form the rural sanitary authority of such district, with the following exceptions:—

“(1.) No elective guardian of any parish belonging to such union, and forming or being wholly included within an urban sanitary district, shall act or vote in any case in which guardians of such union act or vote in their capacity of members of the rural sanitary authority:

“(2.) Where part of a parish belonging to a rural union forms or is situate in an urban sanitary district, the Local Government Board may, by order, divide such parish into separate wards and

determine the number of guardians to be elected by such wards respectively in such manner as to provide for the due representation of the part of the parish lying within the rural sanitary district; but until such order has been made the guardian or guardians of such parish may act and vote as members of the rural sanitary authority in the same manner as if no part of such parish formed part of or was situate in an urban sanitary district:

“(3.) An ex-officio guardian resident in any parish or part of a parish belonging to such union, which parish or part of a parish forms or is situate in an urban sanitary district, shall not act or vote in any case in which guardians of such union act or vote in their capacity of members of the rural sanitary authority unless he is the owner or occupier of property situate in the rural sanitary district of a value sufficient to qualify him as an elective guardian for the union.

“A rural union in this section means any union which is not itself an urban sanitary district, nor wholly included in an urban sanitary district.”

The Act states that the first meeting of the sanitary authority must be held within twenty-eight days after the passing of the Act, or at such other time as may be directed by the order of the Local Government Board.

The powers exercised by all other sewer nuisance or health authorities, under the Sewage Utilization, the Nuisances Removal, the Common Lodging Houses, the Diseases Prevention, the Artisans and Labourers Dwellings, and the Bakehouse Regulation Acts, are transferred to the new authority:—

“Where the Baths and Washhouses Acts and the Labouring Classes Lodging Houses Acts or any of them are in force within the district of any urban sanitary authority, such authority shall have all powers, rights, duties, capacities, liabilities, and obligations in relation to such Acts exerciseable by or attached to the council, incorporated commissioners, local board, improvement commissioners, and other commissioners or persons acting in the execution of the said Acts or any of them.

“Where the Baths and Washhouses Acts are not in force within the district of any urban sanitary authority, such urban sanitary authority may adopt such Acts, and where the Labouring Classes Lodging Houses Acts are not in force within the district of any urban sanitary authority, such urban sanitary authority may adopt such Acts.”

Several clauses of the Act deal with the property of existing health authorities, which is transferred to the new organizations.

And now we come to the portion of the Act which is of direct interest to the medical profession.

Clause 11 enacts that "it shall be the duty of every urban sanitary authority, from and after the expiration of three months from the commencement of this Act, to appoint a medical officer or officers of health, and also inspector or inspectors of nuisances, in manner provided by the fortieth section of the Public Health Act, 1848, and any enactment amending the same."

And clause 13 further states that every rural sanitary authority shall appoint a medical officer or officers of health, an inspector or inspectors of nuisances, and such other officers and servants as it may deem necessary for the efficient execution of the purposes of the Sanitary Acts.

This is clearly a mandatory clause, and renders the appointment of health officers compulsory; it is the only really meritorious feature of the Act. The medical officer is entrusted with all the powers which the various sanitary Acts confide to the inspector of nuisances.

Half the salary of the medical officer of health is to be defrayed out of the consolidated rate, and the other moiety is to be provided for out of the local rate. We trust that the salaries will be liberal ones, and that a cheeseparing economy on the part of the local sanitary authorities may not mar the best feature of the Act—namely, the compulsory appointment of medical officers of health. The medical officers are to be elected at first for a period of five years—a wise clause, as it will, to some extent, put them out of the power of the local authorities.

The Local Government Board are entrusted with the same powers with regard to the appointment, qualification, duties, salary, and tenure of office of medical officers of health appointed under this Act as in the case of a district medical officer of a poor law union.

Any district medical officer of a union may, with the approval of the Local Government Board, be appointed a medical officer of health under this Act.

Clause 14 provides that inspectors of the Local Government Board may exercise a surveillance over the sanitary authorities similar to that of the poor law inspectors over boards of guardians.

The expenses incurred in carrying out the Act are to be defrayed as follows:—

(1.) In the case of the council of a borough, out of the borough fund or borough rate; (2.) in the case of improvement commissioners, out of any rate leviable by them as such commissioners throughout the whole of their district.

The expenses incurred by the rural authorities are to be distributed under two heads—general expenses and special expenses.

General expenses relate to the establishment and officers of the sanitary authority, the expenses in relation to disinfection, the providing conveyance for infected persons; and all other expenses not specified in the Act or the order of the Local Government Board are to be special expenses.

The general expenses are to be paid out of a common fund to be raised out of the poor rate of the parishes in the district according to the rateable values of each parish mentioned, and the special expenses are to be a separate charge on each contributory place.

The following areas situate in a rural sanitary district are to be contributory places for the purposes of this Act; namely,

“(1.) Every parish not having any part of its area within the limits of a special drainage district or of an urban sanitary district; and

“(2.) Every special drainage district; and

“(3.) In the case of a parish wholly situate in a rural sanitary district, and part of which forms or is part of a special drainage district, such portion of that parish as is not comprised within such special drainage district; and

“(4.) In the case of a parish a part of which is situate within the limits of an urban sanitary district, such portion of that parish as is not comprised within such urban sanitary district.”

The Act empowers the Local Government Board to constitute any sanitary authority whose jurisdiction abuts upon any part of a port or its waters, or the conservators or commissioners, or other local authorities of rivers and inland waters, to act as “port sanitary authorities” for the whole port or a portion of it. The port sanitary authorities will, of course, have entrusted to them the administration of the existing sanitary laws, including quarantine regulations.

The sanitary authorities of two or more districts may combine the areas under their control into a limited sanitary district for particular purposes, but they can only do this with the sanction of

the Local Government Board. The sanitary authority may also delegate its functions for a year to a committee of its own body; and the committee may appoint district or sub-committees.

We have now given a very full analysis of that portion of the Public Health Act of 1872 which is of interest to medical men: it is the most important measure of the kind passed since the enactment of that valuable piece of legislation—the Public Health Act of 1866. It will be seen that the Act deals solely with the machinery of sanitary administration, and that it neither creates new offences nor increases the punishments ordained for those already recognized by the law. It does not even institute any completely new sanitary machinery, but merely reorganizes and improves that already in existence. There is much, no doubt, in this Act which is fairly open to hostile criticism, and its “omissions” are glaring enough; but we nevertheless welcome it as the first general sanitary measure of a compulsory character which has been passed by the Legislature. We trust, too, that next year its provisions may be extended to Ireland and Scotland; and that it may also be amended and its omissions remedied.

With respect to the appointment of medical officers of health, we presume that in general the union officers will be elected health officers. In order, however, to be an efficient sanitarian, the medical officer must be acquainted with branches of knowledge which do not always comprise part of a physician's education. The medical officer of health is often called upon to decide what kind of food may or may not be eaten with impunity, how many persons may safely sleep together in one room of certain dimensions, whether or not a house is in habitable condition; he is to certify that houses and rooms in which there had been cases of contagious diseases are properly disinfected. He has to advise with reference to proceedings to be taken against the owners of chimneys emitting black smoke; and he has to inspect all kinds of factories in which the most complicated kinds of machinery may be, as alleged, the cause of nuisances. Upon such subjects as gas impurities, sewage, and water contamination, he is expected to give opinions *ex cathedra*. The advantage of having a health officer capable of properly performing such duties as those which we have indicated, we hope will be apparent to the local authorities; by combining two or even a dozen of their districts, they might be able to pay adequately for the services of a competent medical officer of health. Whilst we believe that there might with advantage be

one or more inspectors of nuisances in every parish, we think it by no means necessary that every small sanitary district should have a medical officer of health. When Liverpool and Glasgow, each with its half-million of souls, has got but a single medical officer of health, it would appear ridiculous that every poor law union and every small town in England should have a medical officer of health too. One such official per every 25,000 persons would be sufficient; and at this rate England and Wales (excluding the metropolis) would have a corps of professional sanitarians numbering nearly 650. If a larger staff be employed we fear that the inadequate payments which they will be offered will prevent the best men from competing for sanitary appointments.

During the progress of the Public Health Bill, the following letter was addressed to Mr. Stansfeld, and copies of it were sent to a considerable number of members of the House of Commons. It was signed by nearly 20 medical men, more or less connected with sanitation, and including Drs. Rumsey, Budd, Letheby, Ransome, Child, and Robertson.

“The undersigned, feeling convinced that the provisions in the Public Health Bill now before Parliament, whereby it is proposed to permit the appointment of Union Medical Officers as Officers of Health for districts co-extensive with the Poor Law Unions, cannot but ensure the failure of the measure, beg your attention to the following reasons which have led them to this conviction:—

“(1.) The Union Medical Officer is in almost all cases engaged in professional practice, and lives by his practice. His private practice must claim the principal share of his attention, inasmuch as it produces the largest part of his income. Second only to this will always be the claim of his immediate duty as Union Medical Officer in consequence of the necessarily urgent character of much of that duty. It can therefore be but the remnants of his time and energies which a man thus occupied will be able to devote to the duties of an Officer of Health.

“(2.) While he is, from the nature of the case, dependent for his private practice upon the degree to which he can conciliate the good-will of the ratepayers individually, his principal duty as Officer of Health must be to suppress unsanitary local conditions, which are, for the most part, maintained by individual ratepayers for their own profit. To make a person so situated an Officer of Health is therefore, in fact, to pay him to become an informer against his own patients, and it will be manifestly his interest to do as little sanitary work as possible.

“(3.) The undersigned, having had various opportunities of consulting

Union Medical Officers on this subject, have found them very generally so sensible of the reality of the disqualifying circumstances just mentioned, that many of them express great distrust of the successful working of this portion of the Bill, and great personal unwillingness to undertake the office referred to. Hence it appears only too probable that the ablest and most efficient persons among the Union Medical Officers will very generally decline to accept these appointments, and that they will consequently fall into the hands of the least capable and energetic among them, and that even these persons will find their professional interests best served by a judicious neglect of their official duties.

“The undersigned desire to express their entire conviction that no Sanitary Superintendence will ever be efficient unless the Officers of Health be persons entirely independent of mere local interests. This can only be the case if the Sanitary districts are made sufficiently large to supply a salary for the Officer of Health sufficient to render him independent of private professional practice. They therefore wish to urge upon you that the clause in the Public Health Bill^a (Sec. 6) which provides for the extent of the Sanitary districts, should be altered in such a sense as to carry out these views: and further, that words should be introduced into Sections 11 and 13 providing that the Officers of Health shall not be permitted to engage in professional practice. They wish further to submit that the saving effected by the diminution in the number of Sanitary Officers which these propositions involve, would nearly or quite suffice to cover the higher salaries of such efficient Officers as they suggest should be appointed. They would also, in conclusion, express their strong conviction, founded upon special study and experience of sanitary administration, that the Bill, if carried as it stands, in regard to the clauses herein referred to, will inevitably entail a large expenditure of public money, and entirely fail of producing any considerable improvement in the sanitary condition of the country.”

Dr. Child has also addressed a printed letter to the Marquis of Salisbury—who takes great and active interest in sanitary legislation—with reference to the inexpediency of appointing Union Officers to be Health Officers. He argues that the duties of the Health Officer are such as to bring him into constant collision with persons, many of whom are likely to be his private patients, or perhaps members of his Board of Guardians.

“Let us suppose the case of a rich paper-maker or other manufacturer

^a See Clause 10 in the Amended Bill.

with a large family in a country district. It is no violent supposition to suggest that he may possibly infect a neighbouring stream or pollute the well of some of the surrounding cottagers. Mr. A., the surgeon who has been accustomed to attend the paper-maker's family, has become Officer of Health, and as such finds it necessary to certify to the Board of Guardians that the former is occasioning a nuisance injurious to health, and he is consequently put to considerable expense for the purpose of abating it. The immediate consequence of this is, that when the paper-maker's children get the scarlet fever another practitioner is called in, and Mr. A. loses a client whose Christmas account is probably more than equal to his salary as Officer of Health. And the remote consequence further is that most of his attempts to improve the sanitary condition of the district are defeated by means of the vote and interest of the paper-maker and his friends at the Board of Guardians.

“With dangers of this kind perpetually hanging over him I ask, how is it possible to expect that a medical man, *dependent on his practice*, should perform with zeal and efficiency the functions of an Officer of Health?”

In support of this opinion stated in his letter, Dr. Child quotes from a letter addressed to Mr. Stansfeld by Dr. Rumsey the following paragraphs:—

“As to the poor-law medical officers, a recent appeal which I have made in the medical journals for their opinion and wishes on the subject, has brought me an overwhelming testimony against the proposed enactment. I may say that barely three per cent. of the answers are in favour of their being made sole Officers of Health in their respective districts; 97 per cent. prefer acting as paid assistants or deputies to a Principal Officer, specially qualified, and acting over an area sufficiently large and populous to occupy his whole time and relieve him from the entanglements of private practice. Not less conclusive is the evidence from practitioners who act as Health Officers in towns. These complain of undue subjection to the influential nuisance producers on their respective boards. They fully confirm the statements so ably made by Dr. Lyon Playfair on this point, in his speech on the second reading of the Bill (April 5). The greater number of these officers hold office merely to keep out rivals in practice. The whole system is, in truth, a fallacy and a farce.”

The *Chemical News* for September 20th, 1872, advocates the separation of the offices of analyst and medical officer of health. Ostensibly these offices are not held by the same person, with the

exception of the health officer and analyst of the "city" of London; but medical officers are often called upon to consider matters of an almost purely chemical nature, such as, for example, the purity of potable water. We do not, however, agree with the *Chemical News* in believing that medical officers are expected to be accurate analysts in the most difficult branches of chemical science. At present there are many men who are at the same time chemists, sanitarians, and medical practitioners, and excel in each of these pursuits. As a general rule, health officers are practitioners; but if they are called upon to abandon the practice of medicine and surgery there is the more reason why they should closely study chemistry and such other sciences as relate to public hygiene. A man may become a great physiologist or anatomist and yet remain in ignorance of the proper mode of treating disease, either medically or surgically; but no one can become an accomplished sanitarian unless he has acquired a considerable knowledge of physical science.

The *Chemical News* states that a movement is on foot to divide the duties of the medical officer of health of the parish of St. George, Hanover-square, London, between two persons—a medical man and a chemist. "The chemist who offers himself is Dr. Dupré, Lecturer on Chemistry in the Westminster Hospital Medical School; whilst the medical profession is represented by R. I. Lee, M.A., M.D., Cantab., Lecturer on Forensic Medicine at the same school." Now, a lecturer on forensic medicine should be a chemist capable of conducting the most difficult kind of analyses, and if Dr. Lee were appointed medical officer and debarred from practice, there is no reason why he should not analyse any food or water which might be officially submitted for his inspection. Public sanitarians need not be divided into two classes equally numerous—one chemical, the other medical. One chemist would be quite sufficient for every score of medical officers. Let there be an analyst for every large town and every county; but in our opinion there is no sufficient work for a chemist in every parish, even if it were so large as St. George's, Hanover-square.

A recent Act of Parliament has formed a Local Government Board for Ireland, and has transferred to it all the powers hitherto wielded by the Poor Law Commission—which is abolished. The Chief Secretary for Ireland is President of the new Board, and Mr. Power, C.B., late Chief Poor Law Commissioner, is the Vice-President, and, we presume, actual head of the department. The

powers of the Board (except those relating to the care of the poor) are ill-defined; but it apparently takes the place of the Privy Council with respect to the administration of such sanitary laws as are not managed by the local authorities. Next year, we hope, the Board will have increased powers conferred upon it by Parliament.

THE FOOD ADULTERATION PREVENTION AMENDMENT ACT, 1872.

On the 18th August an Act was passed to amend the Food Adulteration Prevention Act of 1860. In several important respects this Act differs from the first one, with which, however, it is incorporated. The following are the more important features of this enactment:—

Any person who wilfully adulterates a drug—even with a harmless ingredient—or orders the same to be done, is liable, on conviction, to be fined in a sum not exceeding £50; and on a second conviction for a similar offence he may be sent to prison, and kept there at hard labour for a period not exceeding six months.

The persons who mix, or order to be mixed, with articles of food or drink any substances injurious to health, are placed in the same category with those who adulterate drugs with noxious or innocuous materials.

Those who are convicted for selling food or drink adulterated with innocuous substances intended merely to fraudulently increase the weight of the articles, may be fined in a sum not exceeding £20; and on a repetition of the offence their names, addresses, and particulars of their misdemeanour may be published in the newspapers or otherwise at the expense of the culprits. Clause 3, however, permits vendors to sell adulterated articles, provided that they state to the purchaser the fact of their sophistication.

The appointment (and payment) of public analysts is vested (subject to the approval of the Lord Lieutenant in Ireland, or a Secretary of State in Scotland, or the Local Government Board in England) in the corporations of boroughs, and the authorities of towns in which Courts of Quarter Sessions are held, and the grand juries of counties in Ireland, the Courts of Quarter Sessions of English counties, and the local authorities in Scotland corresponding to the above. We think that all the local authorities who are empowered to appoint medical officers of health should also be allowed to elect analysts. As it is, the important township of Kingstown, county of Dublin, with a population of more than 20,000 persons, cannot appoint an analyst, although Portarlinton,

Mallow, and other small boroughs, have this privilege, if they choose to exercise it.

Amongst the improvements noticeable in the new Act is the compulsory appointment of analysts by local authorities, when requested to do so by the Lord Lieutenant in Ireland, the Local Government Board in England, or one of the Secretaries of State in Scotland. The local authorities are now enabled to appoint inspectors whose business it will be to buy or otherwise procure articles of food, drink, and drugs, for the purpose of being analyzed. It is not necessary now that the buyer should notify to the vendor his intention of having the articles purchased examined by the chemist, a notice which was necessary under the old Act, and which was found a great drawback to its working. The purchasers of food, &c., are in future to hand the articles which they desire to have analyzed to the inspector of markets or nuisances, and not to the analyst. When the inspector delivers the article to the chemist he must in the presence of the latter seal up a portion of the sample and retain it, in order that if the case be brought before a magistrate he may, if he thinks it necessary, order a further analysis to be made.

It is evident that under the provisions of this Act no one can be convicted for selling an adulterated article of food, drink, or drugs, unless it can be proved that he knew the article was adulterated. The retail traders may therefore buy at low prices from the manufacturers or wholesale dealers the most grossly adulterated stuff, and sell it with impunity. There are only a few mustard-makers in the United Kingdom, and these sell to tens of thousands of shop-keepers articles varying from pure mustard (which, however, is rarely the case) to a compound containing less than 10 per cent. of that commodity. It will be useless to prosecute the retail dealers in mustard, because, not being manufacturers of the article, it will be contended that they had no knowledge of its actual composition—that, in fact, they sold it in the same condition that they bought it. The same excuse will be made for the retail vendor of spirits, confections, spices, drugs, and innumerable other articles. In short, it is only manufacturers of food, drink, and drugs that can ever be successfully prosecuted under the new Act, though under the former one any person who sold adulterated food was liable to conviction. We believe that the practice of adulterating food will not be seriously checked until the retailer is made responsible for the quality of the goods which he vends. If he is fined for selling

an adulterated article, it will make him more careful in his future transactions with the manufacturer; besides, he will have a good cause of action against the latter. In the case of artificial manures, feeding stuffs for cattle, and seeds, the person who sells these articles is held responsible for their purity by the buyers. If the seeds fail, owing to their being adulterated, the retail trader is liable to be brought into a court of law and to have to pay damages; but then he may (and often does) indemnify himself by taking proceedings against the wholesale dealer. We repeat, then, that no measure short of making *every* vendor of food, drink, and drugs responsible for the purity of his wares will be found worth much as a means of checking the wide-spread system of adulteration which prevails in these countries.

POISONOUS COLOURS.

In the Third Annual Report (for 1871) of the State Board of Health of Massachusetts there is a very exhaustive report by Dr. Frank W. Draper, on the "evil effects of the use of arsenic in certain green colours." The author believes that a large amount of disease is produced by the employment of arsenious acid as a pigment for wall paper, textile fabrics, and confectionery. Two compounds of arsenious acid are largely employed as pigments, namely, hydrocupric arsenite (Scheele's green) and the aceto-arsenite of copper, or Schweinfürt green. Both pigments are usually confounded by workmen, and are termed Brunswick, Vienna, emerald, or emerald mineral green. The arsenite contains 55 and the aceto-arsenite 58 per cent. of arsenious acid, or white arsenic. Both of these arsenical compounds are brilliant and enduring pigments; and a great temptation to use them is their cheapness. In England the consumption of these pigments cannot be less than 700 tons per annum.

Dr. Draper gives a long list of accidents that have occurred from the use of arsenical pigments. Professor Gmelin, of Heidelberg, appears to have been the first to direct attention to the danger to which persons were exposed who lived in rooms the walls of which were coloured with arsenical pigments. Dr. Draper quotes cases of disease from this cause, recorded by Dr. Halley, of London, Dr. James Whithead, of Manchester, Dr. W. E. Rice, of Boston, and other medical men; and, in the works on medical jurisprudence, numerous instances of poisoning by means of arsenical wall paper are to be found. Indeed although there have been doubts expressed as to the possibility of the colouring matter on walls ever being

taken into the system, there is a mass of evidence which, to our mind, clearly establishes the fact.

Arsenic is not volatile under 360° Fahrenheit; therefore, when a poisonous effect is produced by arsenical wall paper it must be owing to the inhalation of fine particles of the pigment. The dust on shelves in rooms coloured with Scheele's green has repeatedly been examined and found to contain arsenic. Chevallier, of Pietra-Santa, Kirchgasser, of Coblenz, and others believe that in addition to the diffusion of arsenic in dust throughout a room, the poison is sometimes dissipated in a gaseous form, probably as arseniuretted hydrogen—and that it may be recognized in the suspected room by its garlic-like or musty odour.

Dr. Draper adds a few cases of arsenical poisoning, caused by green pigments, to the long record of similar instances already published. He found that the chief sufferers were the paper-hangers. We have seen the blood pour abundantly from the nose of a man whilst engaged in hanging unglazed bright green paper; and he told us that he often suffered for weeks after a similar task. The paper-hangers of Dublin wear thick veils when using paper coloured with arsenite of copper. So far as our experience goes, the larger portion of the green paper on sale in Dublin is coloured arsenite of copper. A rough test for the presence of arsenical green is to rub off some of the colouring matter, and digest it with solution of ammonia; if arsenite of copper be present the solution becomes blue. Carbonate of copper, which is used but rarely to colour paper, will, of course, give a blue colour with ammonia.

The green paper here shown is largely on sale in Dublin.

Arsenical greens are used largely to colour artificial flowers, and they are also, but to a less extent, employed in tinting muslins and tarlatans. Dr. Hillier stated in 1861 that the London artificial flower makers commonly suffered from chronic inflammation of the digestive organs, from irritation of the eyes, and the skin of the hands, neck, and scalp; moreover, they suffered from general nervous debility and prostration. These effects were attributed to the constant contact with arsenical powder. In 1861 a girl, aged nineteen, who had been engaged for eighteen months in the preparation of artificial flowers, died after exhibiting the characteristic symptoms of chronic arsenical poisoning. After death the presence of arsenic was actually detected in the internal organs.

The amount of arsenical green in artificial flowers, leaves, and fruit is often very considerable; for example, Professor Hoffmann

detected ten grains weight in a single twig of ten leaves. In coloured muslins the amount of the poison is also occasionally somewhat large, and we can hardly wonder that many ladies have been poisoned owing to arsenical dust from their brilliantly coloured dresses finding its way into their lungs and stomachs.

At the late meeting of the British Medical Association at Birmingham, Dr. Hill, the borough analyst, read a paper on the use of arsenical colours. He mentioned cases of poisoning from emerald green which had come under his own notice. Dr. Hill condemned strongly the reprehensible practice of employing poisonous pigments for the purpose of colouring toys, for young children had a habit of putting their toys into their mouths.

Some years ago sweetmeats coloured green were largely in use; but so many cases of poisoning having occurred from eating confections coloured with Scheele's green, that even harmless greens are no longer employed by the confectioner: indeed, the public now would regard with great suspicion a sweetmeat with a brilliant green tint. We wish that the public would take the same view of the green-coloured wall-paper, and refuse to purchase it, whether it contains arsenic or not. In the meantime the Legislature should be called upon to prohibit the use of poisonous pigments in the case of wall-papers, artificial flowers, and clothing materials.

AIR AND RAIN.

During the last few years considerable attention has been given to the subject of atmospheric impurities, and much valuable information has been obtained relative to the composition of the air and the variations in the amounts of its constituents. In these countries no chemist has so successfully laboured in what we may aptly term the domain of chemical climatology, as Dr. R. Angus Smith, F.R.S., General Inspector of Alkali Works for the Government. His report on the air of mines, published in 1864, contains a large amount of novel and interesting information; but this book has been quite eclipsed by his later and more elaborate work, entitled *Air and Rain*.^a In this volume there is collected so large an amount of statistical information—of which a large proportion is perfectly novel—relative to certain impure conditions of the atmosphere, that we feel almost disposed to believe Dr. Smith has completely exhausted the subject.

At one time it was believed that the relative proportions of the

^a *Air and Rain*, by R. A. Smith, Ph.D., &c. London: Longmans, Green, & Co. 1872.

essential ingredients of the atmosphere did not vary—that the atmosphere of a city contained exactly the same relative proportions of oxygen and nitrogen as the air on the summit of the highest mountain, or in the deepest mines. We now know that this was a mistake, and that there is a great variety in the relative amounts of the atmospheric constituents. The most recent analyses of air by Muller, Brunner, Frankland, Regnault, and other chemists, show that when pure the proportion of oxygen is 20·9. Dr. Smith says that a very favourable specimen of air is that which contains, per cent., by volume:—

Oxygen	-	-	-	-	20·96
Nitrogen	-	-	-	-	79·00
Carbonic Acid	-	-	-	-	0·04
					<hr/>
					100·00

Very pure air, however, contains 20·99 per cent. of oxygen and 0·03 per cent. of carbonic acid. Owing to the combustion of fuel, the decay of organic matter, the respiration of animals, and other causes, the amount of oxygen decreases from the healthy standard of 20·99 to less than 19 per cent. by volume; whilst at the same time a large increase takes place in the proportion of carbonic acid.

The following table which we have constructed from the materials in Dr. Smith's work, shows the variations of the oxygen in air:—

“ Amount of Oxygen in the Air.

(Per cent. or, if read as whole numbers, per million.)

	Vol. per cent.
N.N. sea-shore and open heath (Scotland)	- - 20·9990
Tops of hills (Scotland)	- - 20·9800
In a suburb of Manchester in wet weather	- - 20·9800
“ “ “	- - 20·9600
Swampy places, favourable weather, France and Switzer- land	- - 20·9220 to 20·9500
In fog and frost in Manchester	- - 20·9100
London, open places, summer	- - 20·9500
In a sitting-room, which felt close, but not excessively so	20·8900
In a small room with petroleum lamp	- - 20·8400
Ditto, after six hours	- - 20·8300
Pit of theatre, 11·30 p.m.	- - 20·8300
In sumps or pits in a mine (average of many)	- - 20·1400
When candles go out	- - 18·5000
The worst specimen yet examined in a mine	- - 18·2700
Very difficult to remain in for many minutes	- - 17·2000.”

The maximum amount of carbonic acid found in the wards of a workhouse was 0·0757, in bed-rooms of private houses 0·0519 to 0·0738; in the law courts from 0·0507 to 0·203; in the theatres from 0·0817 to 0·320; in the Madrid hospitals from 0·27 to 0·43; in the tunnels of the London Underground Railways, from 0·078 to 0·338. Pettenkofer states that the average amount of carbonic acid in the air of Munich is 0·05 per cent. In dwelling-houses of that city, he found the carbonic acid to amount, during the day, to 0·054; but it increased, towards night, to a maximum of 0·087. In a bedroom with closed windows the carbonic acid, during the night, rose to 0·230, but when the windows were partly open, it amounted to only 0·082 per cent.

Dr. Smith states that an increase of atmospheric carbonic acid, from 0·04 to 0·07 per cent., is in general recognizable by the senses. An increase of even 0·02 per cent. is not pleasant to us, when caused simply by want of ventilation; but if the increase be associated with an evolution of the gases of putrefaction—which is often the case—the deviation from the healthy atmospheric standard is the more dangerous to health. Indeed, the results of the experiments of Dr. Smith and those of Dr. Hammond, of the United States, show that the ill effects experienced by those who breathe air vitiated by respiration are chiefly due to the organic matter; for if the carbonic acid be removed by chemical means, the respiration of the air continues to produce an injurious effect. In one of Hammond's experiments a mouse died soon in re-breathed air from which the carbonic acid had been removed.

Dr. Smith has devised a simple form of apparatus, by which any person of ordinary intelligence and education might readily determine whether or not the amount of carbonic acid in the air of a place was above the normal, or any other proportion. Baryta water is a most sensitive re-agent for the detection and precipitation of carbonic acid. If half an ounce of baryta water, containing about 0·08 gramme of baryta, be placed in a clear glass bottle, having a capacity of 640 cubic centimetres (22 ounces), and the latter be well shaken, a turbidity (produced by a precipitation of barium carbonate) will be observed, if the proportion of carbonic acid in the air be 0·04 per cent.—that is to say, the 0·2515 cubic centimetres of carbonic acid contained in the bottle will unite with the barium of the baryta water, and form 0·00224 gramme of insoluble barium carbonate in half an ounce of water. The precipitate obtained renders the liquid turbid,

but not quite opaque—it may be described as translucent. If a bottle of the capacity of 154 cubic centimetres (5·42 ounces) be employed instead of one of 640 cubic centimetres, no turbidity is produced in the baryta water; on the other hand, if the bottle contain 44 ounces, or the air 0·08 of carbonic acid, the precipitate is twice as abundant. It is easy, then, by making an experiment in the pure open air, to observe the density of the turbidity caused by shaking half an ounce of baryta water in a closed bottle or jar of 22 ounces capacity; and if, on repeating the experiment in a room, the turbidity is increased, then it is to be concluded that the carbonic acid is in excess and the air impure. Any medical officer of health or hospital physician might, by the aid of a few clear glass bottles of different sizes and a supply of baryta water (lime water might be substituted for baryta water), easily ascertain the proportion of carbonic acid in the atmosphere of the places under his charge. A little practice would soon enable him to discriminate between the precipitate given by 0·04 and 0·08 per cent. of carbonic acid in air. As houses practically never have as pure air as the tops of mountains, we may rest satisfied when a bottle of 3·78 ounces avoirdupois capacity gives no precipitate when half an ounce of baryta water is shaken upon it. The air under such circumstances may contain 0·06, but cannot include 0·07, per cent. of carbonic acid. If lime water be used, then half an ounce of it (containing 0·0195 gramme of lime) is to be shaken up in a 10½ ounce bottle, and it will remain clear if the carbonic acid be below 0·07 per cent.

According to Dr. De Chaumonts, Assistant Professor of Hygiene at Netley, the air of a room cannot be renewed more than six times per hour without producing draughts. The air may, however, be kept free from more than 0·06 per cent. of carbonic acid, and yet no draughts occasioned, if each person be supplied with 1,000 cubic feet of air and 48 square inches of ventilating openings. The openings should be exclusive of the chimneys, if there be an open fireplace.

In Dr. Smith's works a large amount of valuable information is given relative to the amounts of organic matter, ammonia, albuminoid nitrogen, nitric acid, chlorides, and other substances in the atmosphere; and he shows that the combustion of coal often adds to the impurities of the atmosphere the poisonous fumes of arsenic, and, but far more rarely, copper.

The following speculation relative to the dispersion of disease germs throughout the atmosphere will be read with interest:—

“ We have many people so afraid of this organic matter of the air, and of all its floating particles, that they would like to filter it all out, and breathe the gases pure. We must not allow our fear to go too far. We have no reason to be sure that air free from floating particles would be wholesome; we have only the proof that, if there is an excess of some kind, it is unwholesome. Apparently everyone can breathe air tainted with any disease without being hurt, if the taint is small enough. Inconceivably small particles injure; but we must learn to divide even the inconceivably small. We can bear a larger amount of taint if it is diluted enough. Dilute sufficiently the air of an hospital, and infection ceases. One short time of the infected air produces disease; a long period of the diluted air produces none, although the number of particles that must pass over a certain spot must be much greater in the long time than when the stronger mixture passes in the short time. We learn from this that the amount that does injury is not infinitesimal; there must be a certain quantity. I do not doubt that we shall measure that readily: we can readily measure the amount of ammonia and organic matter in the infectious and non-infectious atmospheres. . . . I do not feel hopeless of being able to say that in a scarlet-fever atmosphere there must only be so much nitrogenous organic matter and so many germs, otherwise infection will be certain.”

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

PROCEEDINGS OF THE DUBLIN OBSTETRICAL SOCIETY.

The concluding meeting of this Society for the Session was held at the College of Physicians, on Saturday, June 15th.

The President, DR. KIDD, in the Chair.

A communication was read from Dr. Tabuteau, of Portarlinton, describing a case of recession of the foetal head after extraction from the vagina. In 1859, he was called to visit a woman, aged 22, in her first confinement. She had, when he first saw her, been 30 hours in labour, under the care of a self-taught midwife. He found a face presentation with the chin to the pubis, the head low in the pelvis, and the parts fully dilated. After waiting some time and seeing no progress, he determined on applying the forceps. This he did without any difficulty, and in about five minutes he delivered the head, the chin resting below the pubic arch. In three minutes afterwards he found the head had entirely receded within the vagina. Dr. Tabuteau subsequently effected delivery, without difficulty, of a still-born child. The recovery of the woman was rapid and complete.

DR. DARBY detailed the particulars of a case in which the expulsion of the foetus took place some hours subsequent to death; and also one of fibrous tumour of the uterus which was successfully operated on. (These cases will be found in the proceedings of the Society published in the *Dublin Journal of Medical Science* for September last.)

Cases of Polypus of the Uterus.—By JOHN J. CRANNY, M.B., Ch. M.
Assistant, Rotunda Hospital, Dublin.

The following cases of polypus of the uterus occurred in the practice of the Rotunda Hospital during the past few months, and with the kind consent of the Master, Dr. Johnston, I have ventured to bring them before the Society. The first, Mary M'Cormick, aged 40, single, was admitted on the 8th June, 1871, suffering from profuse hæmorrhage from vagina, great sickness of stomach, and extreme debility and anæmia. She states the catamenia have always been regular, but that for the last

three years the flow became more abundant, and very painful at each period. For six weeks before her admission she had a constant discharge of blood, or of a white and very foetid fluid. On making a vaginal examination, the large tumour, which I exhibit, could be felt, and, as it fully occupied the vagina, it was quite immovable. On the 16th June she was put under chloroform; a strong iron wire was passed round the base of the tumour by means of Gooch's canulæ, and with Dr. Atthill's modification of the ecraseur the wire was gradually tightened, but, unfortunately, it broke. A twisted wire rope was then tried, and it also failed. Finally, a strong steel wire was used, and the tumour was cut through readily. There was now a difficulty in removing it, owing to its size (being nearly as large as a child's head), and the short midwifery forceps had to be applied, and, if I may use the word, "delivery" effected. The pedicle was brushed with nitric acid. She made a good recovery. I saw her on 12th January last, when she told me she had been quite "regular" since, and suffered less at each period than "ever she did in her life." She has grown fat, and is beginning to recover a little of her former colour.

CASE II.—Catherine Grimley, aged 42, also single, admitted 7th August, 1871, in a very anæmic state. Has had severe menorrhagia for two years. Hymen intact. The uterus could be felt about as large as in 7th month of pregnancy. Dr. M'Clintock and Dr. Denham saw this case with Dr. Johnston, and it was decided to dilate the os uteri. Accordingly, on the 14th August, one sea-tangle tent, about the size of No. 8 catheter, was introduced. On the morning of 15th she had well-marked peritonitis; great pain and tenderness over abdomen; vomiting; dry tongue, &c. The tent was withdrawn immediately; she was treated in the usual manner; but in spite of all efforts she gradually sank, and died on the 20th August. *Post-mortem* examination showed extensive peritonitis, a large quantity of greenish yellow lymph glueing intestines together; uterus much enlarged with, as you may perceive, a fibroid growth on its external surface, about the size of a walnut; some nodules in the uterine wall, which was itself about an inch thick. In the cavity of uterus a large fibrous tumour was found, about the size of a man's head, very elastic, giving that deceptive fluctuating sensation usually met with in fibroid tumours, and adherent to three-fourths of the inner surface of uterus. Both ovaries were enlarged and degenerated; the right only was opened; it contained about two ounces of dark fluid, not unlike meconium, and having a foetid smell.

CASE III.—Elizabeth Ducie, aged 49; married 8 years, but was never pregnant. About $4\frac{1}{2}$ years ago she first began to suffer from menorrhagia, accompanied with pain in the back. She applied for relief at the hospital on 12th July, 1871. She was then extremely weak and anæmic.

She had a small mucous polypus hanging from the anterior lip of the uterus, which was removed. Shortly after a sea-tangle tent was introduced, so as to allow the polypus, which was inside, to be reached. The tent produced so much pain that in a couple of hours it had to be removed. She was very poorly for some days after. She was then in such delicate health, and seemed to have suffered so much, that it was thought advisable not to interfere further for a while. She, therefore, went home, and returned on 23rd November last, the hæmorrhage having re-commenced. With the approval and assistance of Drs. M'Clintock and Kidd, Dr. Johnston incised the os, and tried to draw down the polypus with a vulcellum, but, owing to her impatience, had to desist. She was put on ergot, in combination with strychnia, for a few days, then, the os being rigid, and still insufficiently dilated, another incision was made, and Barnes' small dilator introduced. Next day another bag, a size larger, was put in, and on the 21st December, a wire was passed round pedicle, and this tumour was removed with the ecraseur. The polypus is nearly spherical, has a small pedicle, and is about two inches in diameter. She made a good recovery.

CASE IV.—Winifred Chapman, aged 40; married; but separated from her husband for 10 years; admitted on 4th January, 1872; has been suffering for about two years from menorrhagia, which has increased very much within the last three months. In consequence, she was very anæmic. The polypus was removed by wire ecraseur on 5th January, and she went home quite well. Has been regular since.

CASE V.—Margaret Russell, aged 46. Had one child 20 years ago, and has been a widow ever since. She suffered principally from hæmorrhage. The uterine sound passed $4\frac{1}{2}$ inches into the uterus. The polypus could be felt in the os, and was attached to the anterior wall. Sea-tangle tents were used to dilate, and she bore them well; they caused her no pain or inconvenience. When the os was sufficiently dilated, the "hemp-saw" was tried by Dr. M'Clintock, but the cord, which was a very fine one, broke, without separating the polypus, as there was twist or crossing of the ligature just where it emerged from the canulæ, and the rubbing of the two portions, one against the other, very rapidly, frayed it. The chain ecraseur was then applied by Dr. Johnston, and this tumour removed. A small portion, however, could be felt remaining, attached to the uterus. This was brushed over with nitric acid. The hæmorrhages have ceased, and she is going on well.

With regard to the fatal case. It is evident the sea-tangle tent was the *exciting* cause of the peritonitis. In case No. 3 also, the tent undoubtedly did mischief. It would appear, therefore, we must be very cautious in employing them, as they cannot be used in all cases with

impunity. Patients who are very anæmic seem to bear them worst. In case No. 5, where they were borne well, the woman was robust and healthy.

I must apologize for intruding so long on the Society, but I trust you will consider the cases of sufficient interest to form my excuse.

It was decided to take the discussion on Dr. Cranny's and Dr. Darby's papers together.

DR. RINGLAND said there were one or two observations in Dr. Cranny's paper which he did not think it right to let pass without a few remarks. He particularly referred to Dr. Cranny's observations as to the use of sea-tangle tents. He seemed to attribute the unfortunate result in one of the cases he had detailed to the use of sea-tangle. That might be the case, but he (Dr. Ringland) was inclined to think from the experience he himself had had of sea-tangle that the inflammatory action was *post hoc* rather than *propter hoc*. One piece of sea-tangle, of the size of a No. 8 catheter, had been introduced, but those who were in the habit of using sea-tangle were aware that No. 8 size would dilate, but only to a small extent; and he could scarcely imagine that so great an amount of irritation, leading to a fatal result, would follow its introduction. A piece of sea-tangle, such as Dr. Cranny used, would, when expanded, be considerably less than the size of his little finger. He made these observations merely, because if they were to look on the fatal result in the one case and the unpleasant consequences in the other as the result of the introduction of a small piece of sea-tangle, it would bring sea-tangle into bad odour; and he wished, therefore, to express his doubt as to whether it was a *post hoc* or *propter hoc*. Dr. Darby, in the interesting case he had detailed, had employed what he (Dr. Ringland) had been rather in the habit of decrying, namely, the sponge-tent. He believed the introduction of sea-tangle had been a most admirable substitute for the application of sponge-tents. The latter were most irregular in dilatation of the uterus, dilating one portion of it and not the other, and giving rise to profuse foetid discharges, and were in fact an abomination. Perhaps it was because this was one of his hobbies that he had great faith in sea-tangle, and was rather inclined to run down the sponge-tent. He had had experience of one or two cases where a single piece of sea-tangle had to be introduced in the first instance, and they were obliged to use a considerable number afterwards, and were unable to have recourse to the admirable plan of their friend Dr. Kidd of introducing a large number at the first application. He had seen a fatal case where they had to introduce one or two only at first, then more, and on the third day increasing the dilatation still further, and he believed the fatal result arose from peritonitis, caused by keeping up the irritation. He believed

that, if they had employed the old sponge-tent, the result would have been as disastrous, but more rapidly fatal, as in the case to which he referred.

DR. GEORGE JOHNSTON thought the observations of Dr. Ringland were correct on many points; but at the same time he could not too strongly impress on the members of that Society, with respect to the use of sea-tangle, the old saying, "The burnt child dreads the fire." He was not going to decry the use of sea-tangle, but he thought it should be used with a great degree of caution. No later than a fortnight or three weeks ago, he had a case of dysmenorrhœa, where he found the inner os nearly impervious. He introduced a sea-tangle tent with great difficulty. It was not more than the size of a No. 6 catheter, and it was not in more than four hours when he had to remove it from the irritation and pain which it caused. He thought it right to let the Society know the effect produced by the introduction of a single piece of sea-tangle. But, at the same time, in the Rotunda Hospital they introduced it boldly, and with impunity, and fully dilated the uterus by that means.

DR. HENRY KENNEDY observed that there was an important paper in the *Edinburgh Journal* on the subject of sea-tangle, drawing attention to the danger that might result from its use. It was not the thickness of the sea-tangle that caused the danger, but the introduction of anything in a certain state of the constitution; even the thickness of a thread might be sufficient to cause bad results.

DR. JOHN A. BYRNE thought that they were much indebted to Dr. Darby for the interesting case he had brought before the Society of spontaneous delivery after death. They were all much surprised to read in the newspapers of a similar case, which had been reported to have recently occurred in the country. There was a great deal of doubt thrown on the case, and a medical inquiry was held to test the truth of it. He thought that the case which Dr. Darby had described was highly corroborative of the fact having occurred. There were so few instances of the kind—indeed he was not aware of any other case than the two mentioned—that any satisfactory explanation had not been arrived at. He thought it not at all improbable that before the death of the patient in Dr. Darby's case the labour had really set in; and although the labour pains were not sufficient to attract the attention of the persons about the patient, the slow perisaltic action which sometimes goes on for a long time before the proper uterine action sets in, may have been sufficient to cause the os uteri to dilate, so as to allow of the expulsion of the foetus. Dr. Darby said that the rigor mortis might have had something to do with it, and it was also possible that uterine action might have continued after the death of the woman. Now, as to the use

of sea-tangle, although he had a great respect for Dr. Johnston's opinion, he was not terrified in the use of it. He had used it in several cases, and he had never seen any bad results. He had never used the prepared sponge-tent, but *cui bono*—why use it? The sea-tangle had all the advantages of the sponge-tent, without any of its disadvantages. No doubt, in certain conditions of the os, where it was impervious, for instance, they might cause injury to the patient by putting in sea-tangle, but if the canal of the os uteri was sufficiently free to allow of the use of sea-tangle, he would never hesitate to use it in a case requiring it. His friend Dr. Cranny said that where the patient was anæmic the sea-tangle was likely to be followed by bad effects; but the last case in which he (Dr. Byrne) used it was where a lady had not only been reduced to an extreme state of anæmia, but had also suffered previously from severe erysipelas of the head and face, and the use of the sea-tangle was followed by a good result. She had not the slightest peritonitis, or any bad symptom whatever. Dr. Johnston's opinion was entitled to great weight, but he should be sorry that a conclusion adverse to the use of sea-tangle should prevail, for in many cases of hæmorrhage they would be unable to make any investigation into the cause of the disease, and would be left without their right arm in such serious cases as tumours of the uterus, were it not for the aid which the sea-tangle tents afforded.

DR. JOHNSTON thought he had been misunderstood. He did not decry sea-tangle, but, on the contrary, used it very frequently; but at the same time it required to be watched carefully, for fear of the irritation that might be caused by it.

Staff-Surgeon JOHNSTON had seen a good deal of pain produced by the use of sea-tangle, and it required to be used with caution; but as to the comparative effects of sea-tangle and carbolized sponge-tents, he thought it right to say that, having used the latter, he had never witnessed any bad effects, if not left in long. A few hours were quite sufficient, and the medicated sponge-tent came out perfectly free from the nasty smell that used to be so disgusting in these cases. He would recommend them to the members of the Society for a new trial.

DR. RINGLAND—Do they dilate as uniformly as sea-tangle?

Staff-Surgeon JOHNSTON—For large tumours I don't think they would be applicable, but for the ordinary length of the cervix I think they act admirably.

DR. JENCKEN thought that sea-tangle was a means of dilatation that required to be watched with great care, as in peculiar states of the constitution the smallest thing inserted into the uterus, even the size of a thread, as Dr. Kennedy stated, was sufficient to set up a secondary irritation.

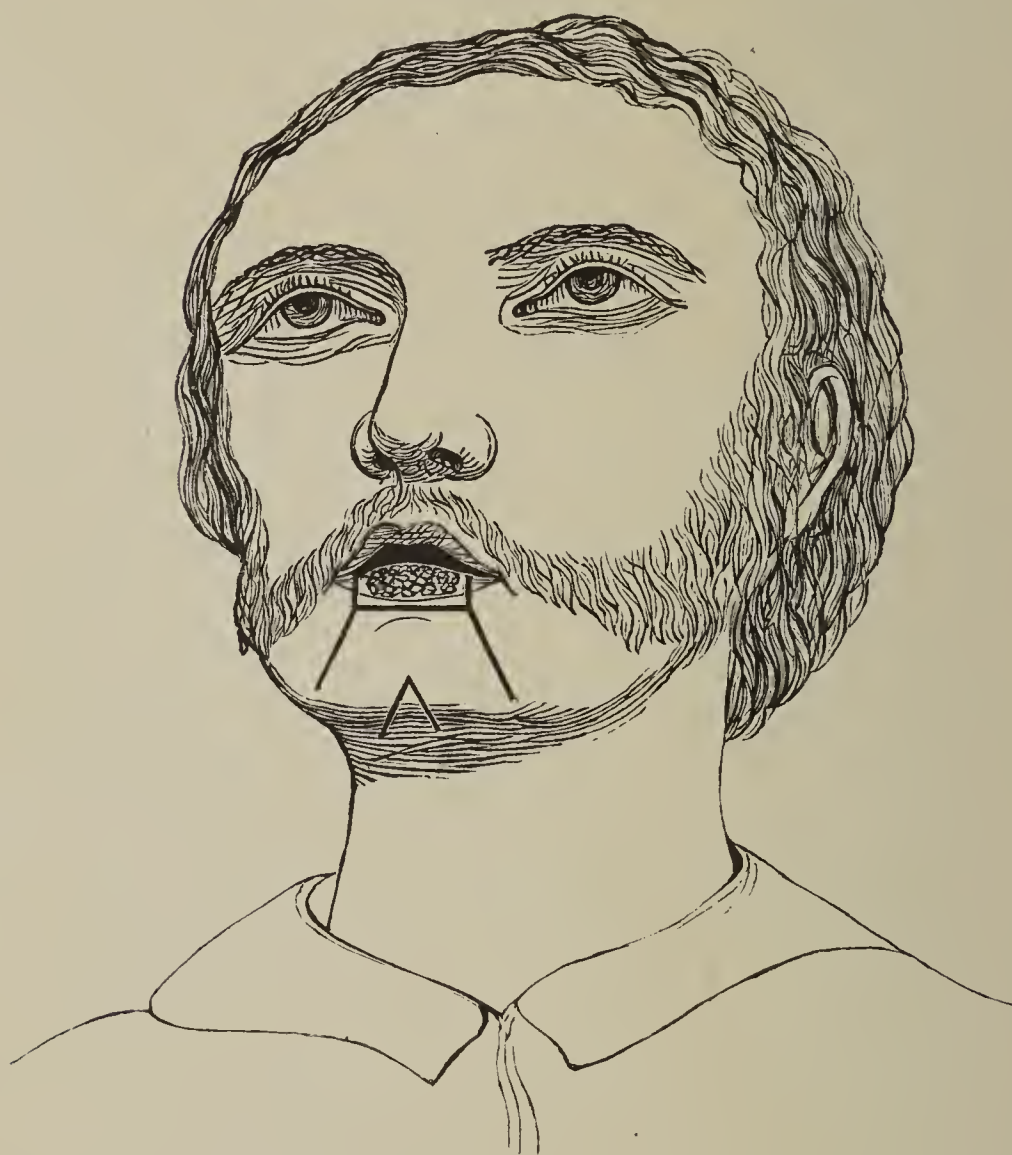
The PRESIDENT was unwilling to let the discussion close without saying a few words with respect to the two papers which had been read, and which he considered of great interest. The use of sea-tangle for dilating the uterus had this advantage, that its action upon the uterus was uniform. With it you can dilate the whole length of the uterus by one operation, which with the sponge tent hitherto used could not be done. In this way the action was more rapid, unless the sponge was used as Dr. J. Johnston had used it, first introducing sea-tangle, and afterwards introducing the sponge. In the majority of cases you can at once introduce as many pieces of sea-tangle as will enable you in twenty-four hours to explore the entire uterus, and remove the tumours if of moderate size. His experience with regard to dilatation of the uterus was, that if it were done rapidly it was comparatively safe. He had done it many times, and he had not seen any inconvenience result from the use of sea-tangle, where it was not kept in too long; but in cases where the uterus did not yield, and it was necessary to put in only a single piece to make way for others, there was more danger attendant on the use of it. He had seen low inflammatory states produced in that way. The great object was to complete the operation quickly; and where the uterus could be fully dilated in twenty-four hours he had never seen any injurious result. In those cases to which he had alluded, when it was necessary at first to introduce only a single tent, and afterwards a number, most careful supervision was required. His own practice was if he found vomiting set in some hours after the introduction of the tents to remove them at once, which, generally speaking, prevents any further mischief; and he either postpones the operation or gives it up altogether. He thought, with Dr. Ringland, that in the case of the large tumours exhibited by Dr. Cranny, the bad results were more a coincidence than a consequence. He could scarcely think the irritation of a single tent could have produced the amount of disease that was present in the fatal case. The fatal consequence might have been directly due to it; for the woman might have escaped, if there had been no interference; but he apprehended her constitution was bad at the time, and that peritonitis was induced by very slight irritation. He had a case now under observation where he had, along with Dr. Churchill, introduced sea-tangle to explore the uterus. We could only get in two pieces, and when we came to remove them we found there was a band at the *os internum*, which did not yield to the sea-tangle, and there was great difficulty in getting them out. We stopped all proceedings for a time, and when all irritation had subsided divided the band with a view to subsequent operation; and Dr. Churchill and he had made arrangements for renewing the operation with sea-tangle for the purpose of dilating the uterus, but, of course, if there were any irritation they would not proceed

with it. Another important point arising out of Dr. Darby's paper was the irritation caused by the use of the ligature. One of the advantages of the ecraseur in such cases was that they got rid of the irritative fever and foetid discharges, and probably a foetid mass remaining in the uterus for some time. Where he had succeeded in removing a tumour with the ecraseur he had never seen a single bad result, or even an unpleasant symptom arise. Dr. Darby's modification of the forceps for carrying the ligature round the tumour was very ingenious, but at the same time he thought a steel wire would encircle the base of the tumour better than any hempen ligature, and was a safer mode of removing uterine tumours.

DR. DARBY, in reply, said that in the case he had mentioned it was necessary to dilate the os fully. He first introduced two sea-tangle tents for six hours, and then six others; but these not dilating the os sufficiently he put in a sponge tent, three inches long and as thick as his finger, into the centre of the six pieces of sea-tangle, and by this means dilated the os so fully that he was able to investigate the internal condition of the uterus. As to the objection to sea-tangle that it might cause irritation he did not speak with much experience; but he thought there was a difference between introducing a tent into an irritable uterus merely affected with dysmenorrhea and a uterus that contains a tumour. It was easy to irritate an anæmic patient, who had suffered from uterine irritation and excessive menstruation. He had always found sea-tangle satisfactory. He had dilated sinuses and foetid abscesses with it, and in using it to dilate the uterus, the same observation applied to that as to every other operation—if you find it giving pain to the patient you change your hand. With regard to the twisting of the ligature, he had intended to do so. On that day week, he (Dr. Darby) removed the tumour piecemeal. He did not leave the ligature on to operate gradually, as was the practice in old times, when it used to be left on for some days; but he performed the operation at once, and took away all he could, but from the broad attachment to the uterus a small portion of the tumour remained, and from that came the foetid discharge.

DR. CRANNY said the only objection made to his statement was that by Dr. Ringland, who said one tent would not cause irritation. The woman, however, was quite well when the tent was introduced, and next morning she had well-marked symptoms of peritonitis, and the uterus showed there was no violence done to it on the introduction of the tent. He thought he was borne out by most of the other gentlemen who had spoken as to the care that was necessary in the use of these tents.

The Society then adjourned.



MR. STOKES on Zeis' Cheiloplastic Operation.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XVI.—*Records of Operative Surgery.* By WILLIAM STOKES, Surgeon to Richmond Surgical Hospital; Lecturer on Theoretical and Operative Surgery, Carmichael School of Medicine; Fellow of the Royal Medico-Chirurgical Society of London; Member of the Surgical and Pathological Societies of Ireland; Lecturer on Clinical Surgery.

I.—SUPRA-CONDYLOID AMPUTATION OF THE THIGH.

II.—PROFESSOR R. W. SMITH'S MODIFICATION OF HEY'S OPERATION ON THE FOOT.

III.—TEALE'S RECTANGULAR AMPUTATION OF THE THIGH.

IV.—POPLITEAL ANEURISM TREATED BY O'REILLY'S PRESSE ARTÈRE.

V.—FEMORO-POPLITEAL ANEURISM TREATED BY TEMPORARY DELIGATION OF THE FEMORAL ARTERY.

VI.—TRACHEOTOMY.

VII.—TREPHINING.

VIII.—HARE LIP TREATED BY THE AUTHOR'S OPERATION.

IX.—OPERATION FOR IMPERFORATE RECTUM.

X.—MODIFICATION OF SYME'S RHINOPLASTIC OPERATION.

XI.—ZEIS' CHEILOPLASTIC OPERATION.

XII.—TABULAR VIEW OF ONE HUNDRED AND THIRTY-SEVEN SURGICAL OPERATIONS.

In the following pages, I purpose recording briefly a few cases of special surgical interest, requiring operative interference, which

occurred in my practice in the Richmond Surgical Hospital, during the period between January, 1870, and December, 1871. The operations performed by me during that time were one hundred and thirty-seven in number, namely, fourteen amputations, twelve plastic operations, eleven excisions, four urethrotomies, eleven cataract extractions, six tenotomies, eight reductions of dislocations, six operations for nævi, eight operations for entropium, twenty-one various operations about the head and face, six operations for hydrocele, and thirty miscellaneous operations. At the end of this record, I have appended a tabular view of these procedures.

The first topic I wish to draw attention to, is the operation to which I have ventured to give the term of *Supra-Condylloid Amputation*. Of the six thigh amputations mentioned in the table I have above referred to, three were operated on by this method. The details of this operation I have already had the honour of bringing under the notice of the Royal Medico-Chirurgical Society of London, and the Surgical Society of Ireland. The particulars of the cases operated on in this manner having been already published, I shall content myself with stating some of the chief points that should be borne in mind by the surgeon who adopts this method of amputation, and then mention what the advantages are which it has in common with the other amputations at and near the knee, those, namely, of Velpeau, Blenkins, Lane, Markoe, Syme, and Carden, and those which are peculiar to itself. The femoral section should in all cases be, not through the condyles, as in Gritti's operation, but above them. The section is *supra*, not *per*-condylloid, the division being from half to three quarters of an inch above the antero-superior edge of the cartilage of incrustation. Secondly, the cartilaginous surface of the patella must in all cases be removed; thirdly, the anterior flap should be oval; and lastly, the posterior flap should be fully one-third of the length of the anterior flap. As regards this last point, I am beginning to be inclined to the opinion that the posterior flap should be even somewhat longer than one-third of the anterior flap.

The advantages of "supra-condylloid amputation," may be classified into those which it has in common with the other amputations at and near the knee, and those which are peculiar to itself. Among the former may be mentioned, the stump being more useful for progression, the possibility of bearing pressure on the face of the stump, the patient not being obliged to walk as if he had ankylosis of the hip-joint, the operation being less hazardous than

the ordinary flap, or circular amputations of the thigh, from its being further removed from the trunk, the shock being less, there being less chance of protracted suppuration from the anterior flap, consisting for the most part of skin and fasciæ, impossibility of a conical stump resulting, and lastly, diminished liability to the formation of tubular sequestra. The special advantages I claim for supra-condyloid amputation are those derived from preserving the normal attachments and functions of the quadriceps extensor cruris, the diminished chance of inflammation supervening from the vessels being divided at right angles to their continuity, and not obliquely, the probable advantages derived from having the cut surface of the femur immediately covered by the patella, and lastly, the diminished chance of purulent absorption from the posterior surface of the anterior flap being lined for the most part by synorhial membrane. In truth, "supra-condyloid amputation" possesses all the advantages of both the circular and flap amputations, and the defects of neither.

The supra-condyloid amputation has been frequently performed during the past two years in the Leeds Infirmary, by the eminent surgeons of that far-famed institution, Messrs. Teale, Jessop, and Wheelhouse. I have recently received communications from these gentlemen on the subject of the operation, and their opinions on the surgical value of the procedure will doubtless be read with much interest. Mr. Jessop observes—"My cases number five, and have all been performed in the Leeds Infirmary. Of these, three have obtained stumps in every way perfect; in one the patella slipped from its moorings, and remains movable towards the outer side of the stump, which, nevertheless, is an excellent one. The fifth died at the end of many weeks, with a perfect result so far as the amputation was concerned; he was a drunken elderly man, who had been run over in the railway, and whose internal organs were in a degenerate condition. It is my intention to give the operation a much more extended trial. So far I am highly satisfied with the results obtained, and am inclined to endorse all you have said respecting it in your paper."

Mr. T. Pridgin Teale observes—"I have done your supra-condyloid operation twice, and imperfectly a third time. I will endeavour to send you notes of the cases.

"The imperfect case died. The others have very good stumps; but in one the patella is drawn up on to the front of the femur. As far as I can judge from my own cases and those of my col-

leagues, I consider the operation a very satisfactory one. Whether there is an advantage, or any disadvantage, in retaining the patella is a question which experience alone can solve. It is, however, satisfactory to me to find that my father's principle of a long anterior flap comparatively thin, devoid of large blood vessels and nerves, and of bulky muscles, and the keeping of the cicatrix well behind and away from the end of the bone, works out so well in the varieties of amputation introduced by yourself and Mr. Carden."

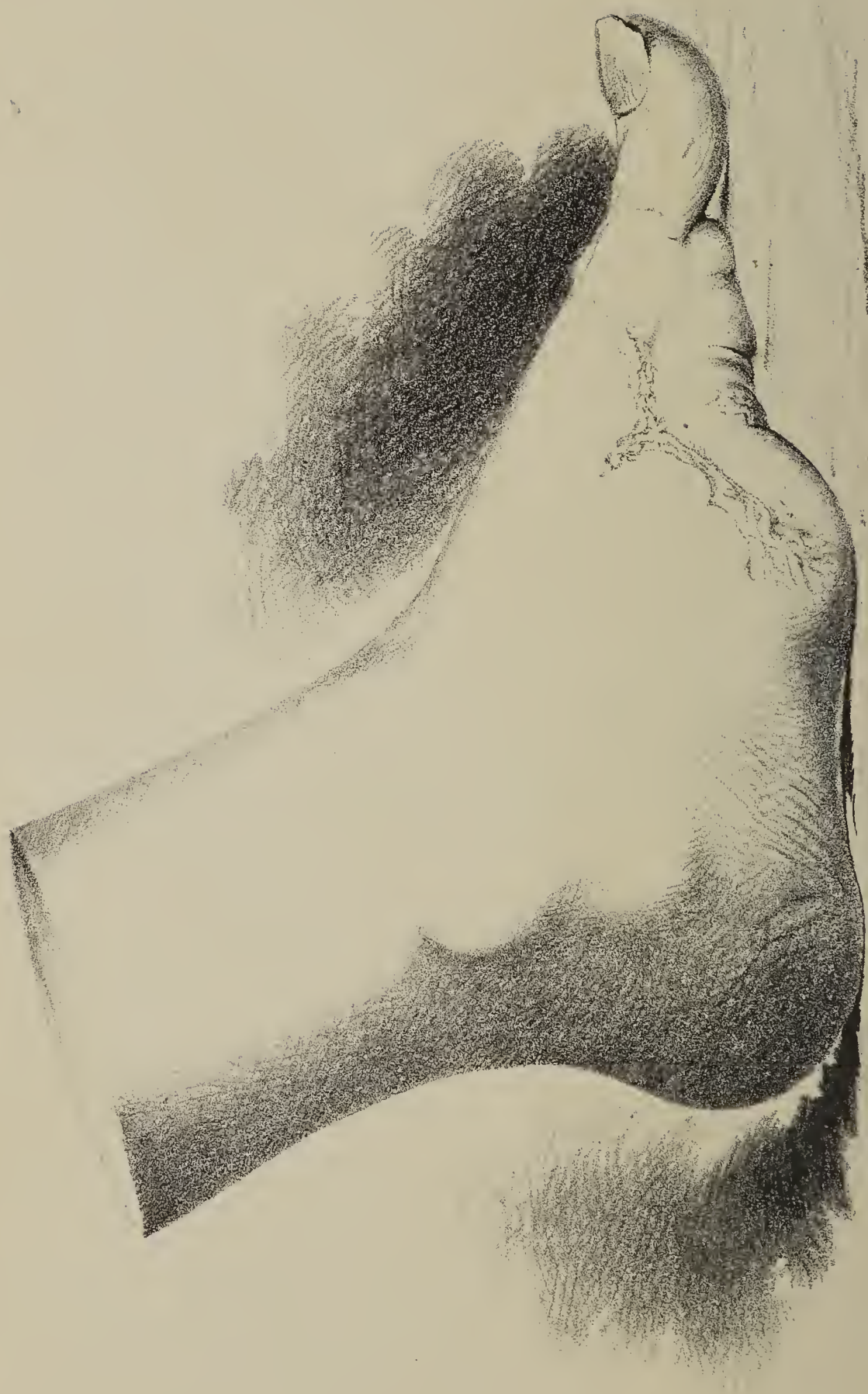
The strongest testimony, however, I have as yet received as regards the value of the operation has been from Mr. Wheelhouse. He remarks—"I have performed the operation four times, and with invariable success. I consider the method to possess advantages which render it in many cases *decidedly superior to any other known method of amputation* of the limb, and which render its adoption almost, if not quite imperative.

"In no instance, in my hands, has the patella slipped from its position at the end of the sawn femur; in no instance has there been any threatening of the formation of any sequestrum; and in all, a good cushion, covered with well organized skin, and a limb (or rather stump), endowed with more than usual freedom of movement has been the result."

Such testimony, coming from surgeons of such eminence, is deeply important, and must carry the greatest weight.

It is, in truth, most satisfactory and gratifying to me to find the early adoption of supra-condyloid amputation by surgeons of such acknowledged celebrity as those of the Leeds Infirmary, and I feel confident that the larger the experience they, or others who may perform it, obtain, the more disposed they will be to endorse all that I have said in its favour in my first paper on the subject in the *Medico-Chirurgical Transactions* for 1871, as I am satisfied that in time it will be universally adopted by operating surgeons in all cases where its performance is practicable.

Professor R. W. Smith's Modification of Hey's Operation on the Foot.—The great advantage of this operation over the other so-called partial amputations of the foot, those, namely, of Hey, Lisfranc, and Chopart, is that the two anterior points of support, the ball of the great toe and the base of the fifth metatarsal bone, are preserved. In the operations just mentioned, as is well known, only one—the os calcis—remains, but in Professor Smith's operation the three normal points of support already indicated are retained.



J. W. Smith

Mr. STOKES on Professor R. W. Smith's Modification of Hey's Operation.

The importance of this cannot be over-estimated. The operation is performed by making an oblique incision across the four lesser metatarsal bones, commencing about three-quarters of an inch in front of the base of the fifth metatarsal bone, and in a direction towards the metatarso-phalangeal articulation of the great toe. The incision should be made down to the bones, and another incision^a should then be made at the centre of the first one, but at right angles to it, upwards and inwards, for about an inch or an inch and a quarter. The flaps at each side of this second incision should then be dissected off the bones, and these, thus freely exposed, should then be obliquely divided close to their proximate articulations with a small saw or fine forceps. The flap should be taken altogether from the sole of the foot. The operation appears to be best adapted for cases of caries of the phalanges and distal extremities of the metatarsal bones, for severe injuries of the phalanges with extensive laceration of the soft tissues, and epithelial ulcerations not unfrequently occurring in this situation. The following is an example of the latter form of disease, as was also the case for which Professor R. W. Smith performed the operation for the first time.

M. F., aged fifty-eight, was admitted into the Richmond Surgical Hospital, under my care, on May 21, 1870, suffering from an extensive epithelial growth on the three lesser toes of her right foot. It had commenced about three years previously by the formation of a small wart between the third and fourth toes. It remained stationary for upwards of two years, but then it commenced to spread to the other toes. The patient attributed the disease to the wearing of tight boots. At the time of her admission, there was a thin sanious semi-sanguinolent discharge from the ulceration, and which had the characteristic fœtor so often present in cancerous ulcerations. The disease had attacked the three lesser toes, and an unhealthy purplish red discolouration on the outer aspect of the second toe pointed to the great probability of its being soon attacked by the disease. On the sole of the foot, there was no sign of ulceration, but the discolouration already alluded to extended to within a finger's breadth of the metatarso-phalangeal articulation. From the history of the case, the peculiar and characteristic fœtor, and the appearance of the growth generally, it was sufficiently obvious what the nature of the case was. As the great toe was unaffected by the ulceration, as well as the soft parts

^a In Professor Smith's case the second incision was not made.

covering the fifth metatarsal, I performed the modification of Héy's operation on the foot, which was first suggested and practised by my colleague, Professor R. W. Smith. On May 24th, I performed the operation in the manner I have above described. Carbolic acid dressings were applied during the healing of the wound. The result was most satisfactory, and early in July, the patient returned to the country, having perfect use of the foot, being able to walk without a stick or any other assistance. The accompanying lithograph, taken from a cast of the stump, is an accurate representation of it at the time the patient left the hospital.

I am indebted to Professor R. W. Smith for the following notes of the case, for which he first performed his modification of Hey's operation on the foot:—

Mary Betagh, aged sixty-five, admitted for a large epitheliomatous growth in the dorsum of fourth and fifth toes of the left foot. The integuments covering the second and third toes were discoloured and covered with minute fissures. The great toe was sound and healthy in every respect. The disease was of several years' duration, and had succeeded some trifling injury received long before. In short, its history was identical with that with which surgeons are familiar, as marking the origin and progress of the “warty ulcer of Marjolin.”

There being a sufficient quantity of sound integument in front of the tarso-metatarsal articulations to permit of the formation of healthy flaps, it was determined to remove the diseased parts by adopting the lines of incision followed in Hey's amputation, but instead of disarticulating the metatarsal bones, to divide them with a bone forceps just in front of their junction with those of the tarsal, a much more simple proceeding, and possessing the very great advantage of leaving the base of the fifth metatarsal bone, one of the points of the tripod upon which the foot rests. The great toe being also left, the base of support in standing and during progression remained perfect.

More than a year and a half after the woman left the hospital I heard of her attending a country wedding, and dancing upon the “light fantastic toe.”

The accompanying wood-cut, taken from the cast of the stump, gives a fair idea of its appearance when the patient left hospital.

Teale's Rectangular Amputation of the Thigh.—The surgical value of Teale's rectangular amputation and the ingenious modification of



MR. STOKES ON PROFESSOR R. W. SMITH'S MODIFICATION OF HEY'S OPERATION.

that operation suggested by Mr. Wharton, have been so ably advocated in the Dublin School of Surgery, notably by Mr. Porter, who first introduced Teale's method of amputation into Dublin,^a Mr. Croly and others, that I will refrain from entering at the present time into any discussion as to the merits of the operation, or the modification of it to which I have already alluded. It may, however, not be considered devoid of interest if I add another to the long list of successful cases treated in Dublin by the rectangular method of amputation—a method which doubtless possesses all the advantages originally claimed for it by the eminent surgeon who first recommended it.

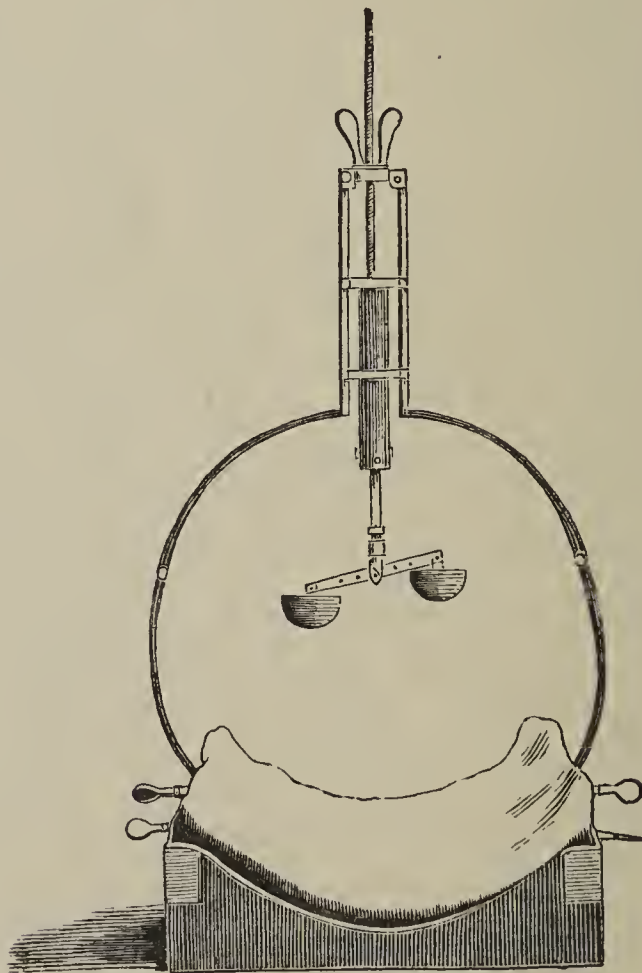
J. Woods, aged twenty-two, was admitted into the Richmond Hospital on January 3rd, 1871, suffering from extensive disease of the left knee-joint. The patient stated that twelve months previous to his admission, while jumping across a ditch, he missed his footing and came to the ground with great violence on his left knee. At the time he suffered great pain in the joint, which, however, after a time subsided. The following day the joint was very painful and stiff. Notwithstanding this, he continued his work as usual. In this condition he remained for ten months, still working, until at last the pain became so severe that he determined to consult a "bone setter." This he did, and he was informed that he was suffering from an unreduced luxation. Measures were taken to reduce the supposed displacement, which attempts were, as might easily be imagined, followed by considerable exacerbation in the patient's symptoms. Shortly after this he came into hospital, and then had all the usual symptoms and signs of suppurative inflammation of the knee-joint, with ulceration of its cartilages. The starting pains were especially severe, and continued increasing in intensity every night. On January 26th an opening was found immediately over the tubercle of the tibia, which communicated with the joint, from which a considerable discharge of unhealthy-looking pus flowed. His pulse was at this time 120, and other serious symptoms of a febrile character were present. Towards evening his mind wandered greatly, and he had total loss of sleep, except when he was under the influence of opium. On February 7th I determined to amputate the thigh, and performed the operation by the rectangular method of Teale. Nothing untoward occurred until the 18th day after the operation, when the

^a See Dub. Quar. Jour., 1863.

femoral ligature came away, and shortly after there was secondary hæmorrhage. It was promptly arrested by a Carte's compressor, and after this there was no recurrence of the bleeding.

Nothing could be more perfectly satisfactory than the ultimate result of this case.

Popliteal Aneurism treated by O'Reilly's Presse Artère.—The great value of the treatment of aneurism by pressure is now so established, and is a procedure so justly held in high estimation wherever the science and art of surgery is practised and taught, that it may, not unnaturally perhaps, be thought unnecessary for me to add another to the long list of cases successfully treated by this method, and that from time to time have been recorded, and, in truth, I should not do so on the present occasion were it not that in the case I am about to discuss I used an instrument which on this occasion was practically tested for the first time,^a and from the ease with which it was borne by the patient and the satisfactory result that was obtained I formed a high opinion of the appliance,



^a The instrument made use of in this case was devised by my friend Mr. O'Reilly, and manufactured by Messrs. White, Surgical Instrument Makers, Sackville-street, Dublin.

and should not hesitate to make use of it again should a similar case of popliteal aneurism come under my observation.

P. D., aged twenty-three, a labourer, was admitted into the Richmond Hospital, under my care, on November 23rd, 1870. About five months previously he gave his right ankle a twist, and about four months afterwards, while stepping from a car, his foot struck against a broken nail which was projecting from the surface of the cart, and in endeavouring to recover himself he violently strained his right foot. He had noticed a slight swelling in the bone a few days prior to the second strain, and from that time the tumour rapidly increased in size till three weeks before his admission, when he was obliged to give up work. Six months previous to his admission he contracted syphilis, for which he was treated solely by mercury. On examination a large pulsating tumour, distinctly circumscribed, was found occupying the right popliteal space, somewhat ovoid in shape, and about the size of a lemon, more prominent on the outer than on the inner side. The limb was semi-flexed, and any attempt to straighten it was attended with great pain. On applying a stethoscope over the tumour, a *bruit* was heard, which, when pressure was made on the femoral artery, completely ceased, as the pulsation did also. There was no evidence of any cardiac complication. On the third day after his admission, the pain in the tumour became extreme; the tumour itself was also large. At the time of the patient's admittance, the circumference of the knee was sixteen inches and a half, that of the opposite side being only fourteen inches. The circumference of the knee on the affected side was now increased to seventeen inches. On November 28th I applied for the first time O'Reilly's *presse artère*, which my colleague Professor M'Dowel had kindly lent me. The pressure was kept on the artery for four days without any intermission, one of the clinical assistants having, with praiseworthy enthusiasm, remained beside the patient by day and night, to see that nothing should occur to alter the position of the instrument. The pressure did not cause any pain or inconvenience. On one occasion during the four days a *presse artère* of another principle was placed on the artery, near the groin, as I feared the continuous pressure on the thigh might produce a slough. The second instrument, however, was not borne for more than about ten minutes, and I accordingly replaced the first *presse artère*, and the patient immediately expressed himself free from pain again.

On December 2nd, at 11 a.m., I removed the instrument, and the

tumour was found to be perfectly consolidated, and without a trace of pulsation in it. For two days the instrument was left loosely applied, and then was taken off altogether, and not the slightest pulsation was perceptible. There was a good deal of œdema of the leg, which rapidly subsided after the instrument was removed. The internal and external articular arteries were felt distinctly, and pulsated strongly. On December 8th the circumference of the knee was found to be reduced to sixteen inches.

Femoro-Popliteal Aneurism treated by temporary Deligation of the Femoral Artery.—The next case of aneurism to which I wish to draw attention, was one which presented many features of clinical interest. It was a femoro-popliteal aneurism of enormous size, and was treated, in the first instance, by pressure, and subsequently by temporary deligation of the femoral artery.

J. R., aged thirty-six, was admitted into the Richmond Hospital, under my care, on August 17, 1870, suffering from a large pulsating tumour, occupying the lower extremity of the thigh and popliteal space. He had been a soldier in the 67th Regiment, and in 1860, serving in the Chinese expedition, received a gunshot wound near the knee. The ball entered a little external to the tuberosity of the tibia, and was never extracted. He recovered from this wound and was enabled to rejoin his regiment. Four years subsequently, he left the service, since which, up to the time of his admission into hospital, he was employed as an agricultural labourer. Three weeks previous to his admission, when going home after his day's work, he felt something "jump in his ham," and then first observed the tumour. On admission he was suffering greatly from pain, which he referred to the outside and lower part of the joint. The tumour was very large, and occupied the inner side of the lower third of the thigh and the popliteal space. Auscultation revealed a loud *bruit*, which was completely stopped on making pressure on the femoral artery. On the 22nd of August I commenced making pressure on the femoral artery, using alternately Read's and Cartes' artery compressors, the former at the groin, and the latter at the middle of the thigh. Pressure was uninterruptedly maintained for four days and nights, at the end of which time the patient declared he could not, and would not, bear it any longer. It was, accordingly, removed, and no difference was observed in either the size or consistence of the tumour.

Pressure having failed, I had then three courses open to me—

Mr. Stokes on Femoro-popliteal Aneurism.



amputation, permanent or temporary deligation of the femoral artery. I determined on the latter, for the following reasons:—First, the amputation would have had to be performed very high up in the thigh at the junction of the upper with its middle third, under any circumstances one of the most formidable and hazardous operations a patient can be subjected to, and especially so when he happens to be much worn and debilitated by long-continued suffering. Looking, too, at the great size of the aneurism, and its extending so high up in the thigh, I deemed it not only possible but probable that the artery might not be healthy in any part of its course, and that to place a permanent ligature on such a vessel would likely be followed by ulceration and hæmorrhage, which, did it occur, would probably prove fatal, in consequence of the exhausted condition of the patient. Under these circumstances, having regard to the fact that in the case where I temporarily deligated the abdominal aorta no damage whatever was sustained by the artery, I determined to adopt the same course in this case. On September 3rd, assisted by my colleagues, and my friends Mr. Porter and Mr. Tufnell, I exposed the femoral artery, placed a silver wire round the vessel, and passed Porter's clamp down on the two free ends of the wire. These were tightly fixed to the ring of the clamp. This effectually arrested all circulation through the aneurismal tumour. Fifty hours after the ligature was applied, I removed it, and, to my great disappointment, there was a return of pulsation in the aneurism. The tumour then commenced to increase rapidly. At a full consultation, digital compression was recommended and determined on, and this was carefully kept up for twenty-four hours, the great pain in the tumour being effectively alleviated by hypodermic injections of the acetate of morphia. The digital compression also failed to modify the tumour, and I then determined that amputation afforded the patient the best chance, which was but a slender one. I accordingly amputated the thigh by the ordinary circular method. For some days the patient did very well, and gave me great hopes of his ultimately recovering; however, pyæmic symptoms supervened, and the patient gradually sank. On examining the tumour the aneurism was found to be a diffused one. The artery (popliteal) was ruptured on its anterior aspect. A large mass of coagulated blood was found in the tumour. The knee-joint contained about an ounce of amber-coloured serum, otherwise the articulation was quite healthy. The posterior surface of the femur at its lower third was denuded of periosteum, and slightly

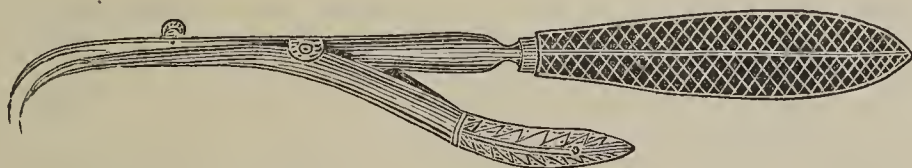
eroded. There was a permanently patent condition of the aortic valves. The patient having stated that the bullet had not been extracted from the head of his tibia, I made a section of the bone and verified his statement, as I found the ball encysted, where it had remained for ten years. An examination of the portion of the artery where the temporary ligature had been applied showed that no damage had been sustained by the artery. This is a matter of considerable importance, as it shows conclusively that the wire compressor can be applied to a large artery so as to completely occlude it for so long a period as fifty hours, without doing any injury to it whatever. Mr. Holmes, in his admirable lectures on the surgical treatment of aneurism, delivered in the Royal College of Surgeons, England, last June, in speaking of the case where I applied the temporary ligature to the abdominal aorta, observes that the time (twelve hours) during which it was applied "hardly allows a judgment as to the action of the compressor." In the foregoing case, however, the instrument was applied for *fifty* hours without there being any damage whatever sustained by the vessel.

Tracheotomy.—As I am not aware of any case in which the difficult and hazardous operation of tracheotomy performed *twice* on the same subject has been recorded, the particulars of the following one must, doubtless, be considered of much surgical interest.

Bridget H., aged thirty, was admitted into the Richmond Hospital under my care on January 16, 1871. The patient contracted syphilis about eight years ago. Constitutional symptoms followed the attack, and the larynx became affected. About fifteen months previous to her admission she suffered from an acute attack of laryngitis, for which she was treated by Mr. Fleming. She was brought under the influence of mercury, which temporarily relieved her, but subsequently the dyspnœa became so excessive that tracheotomy had to be performed. After the operation the case progressed very well; the tube was removed, the wound healed, and the patient eventually left the hospital quite free from all laryngeal distress. For nearly twelve months after this operation, the patient enjoyed tolerably good health, but about six weeks before her second admission into hospital she began to be affected as before. Her breathing became difficult, her voice hoarse, and she suffered also from persistent cough. On admission her symptoms were very urgent: she had constant dyspnœa with orthopnœa, stridulous and harsh respiration, troublesome cough, extreme pain referred to the

larynx, hoarseness, dysphagia, great anxiety of countenance, and considerable constitutional disturbance. These symptoms increased at night, when violent paroxysms of dyspnœa frequently occurred. The symptoms were so very urgent that a laryngoscopic examination was not considered feasible. On January 20th I determined that the performance of a second tracheotomy was the only course open in order to save the patient's life. I accordingly performed the operation. I had very great difficulty in introducing the tube, owing to the violent paroxysms of dyspnœa (one of which was very nearly proving fatal), the struggles of the patient, the great depth and mobility of the trachea, its great contraction, a condition probably resulting from the first tracheotomy, and the copious venous hæmorrhage. These difficulties, however, were overcome, chiefly owing to the employment of Von Langenbeck's double tracheotomy hook, an instrument which is as simple as it is ingenious in its construction, and the tube was introduced. This was followed by immediate relief. The respiration continued during the day quite quiet. Occasionally the inner tube became clogged with mucus, which was easily removed with a feather brush. On January 27th the double tube was removed, and Thompson's bivalve trachea tube substituted; the patient being free from all distress, the breathing quite regular, the pulse quiet, and the appetite good. On Feb. 8th the patient left the hospital, still wearing the tube, since which date she has frequently presented herself for examination as an extern patient.

From my experience in this and other cases, I can confidently recommend the double tracheotomy hook of Von Langenbeck, as a thoroughly practical and useful instrument.



Trephining.—James M., aged eighteen, a native of the County Mayo, was admitted into the Richmond Hospital, under my care, on August 11th, 1870, suffering from well-marked symptoms of pressure on the brain. His father stated that five weeks previously, in England, where he had gone to get employment as a reaper, he became involved in a quarrel with some of his fellow labourers, and in the dispute was knocked down, kicked severely on the head, and cut over the left temple. He was, however, able to return to his

work. On the fourth day after the accident, while at his work, he suddenly lost all power of speech. He was then seen by a local practitioner, under whose care he remained for a fortnight. As he made no improvement, his friends began to get somewhat alarmed; his father was sent for from Ireland, and he at once went over to his son. On his arrival he found his son in a state of great prostration, but sufficiently conscious to recognize his father, and when spoken to, could answer in monosyllables. He could also walk about, and was quite sensible. For upwards of a fortnight he remained much in the same state, at times showing symptoms of improvement, and then relapsing again. In this condition he remained until August 8th, four weeks and three days after the injury had been inflicted. He then had a violent attack of vomiting. On the following day the patient and his father started for Ireland. He was driven to the train, and on the journey he was able to sit up without any assistance. They arrived at Leeds in the evening, and remained there that night. Next morning the patient walked to the train, a distance of about a quarter of a mile, and arrived at Liverpool between 4 and 5 p.m. on that evening, no further change in the patient's condition having taken place. They walked from the train down to the quay, and the father left his son sitting on a form while he went on board the vessel to make the necessary arrangements for their passage to Ireland. On his return he found his son in a profuse perspiration, and quite insensible. In about a quarter of an hour he became somewhat better, and was able to walk down to the vessel, a distance of about two hundred yards. On board he again became quite insensible, and remained in the same condition up to the time of his arrival at the Richmond Hospital.

On his admission, at about 11 a.m., he was quite comatose. Both pupils were greatly dilated. Various attempts were had recourse to in order to rouse him, but to no avail. I was then sent for. On examination, I perceived a slight depression under the cicatrix of the wound on the temple. The pupil of the left eye was dilated, the right contracted; pulse 56; mouth persistently kept open; respiration stertorous; insensibility complete; touching the corneæ with a feather was unattended with the slightest irritation. Head turned towards the right side. The patient frequently raised his arms above his head, and then let them fall suddenly. Having regard to the existing symptoms, as well as to the history of the case, I formed an opinion, which eventually

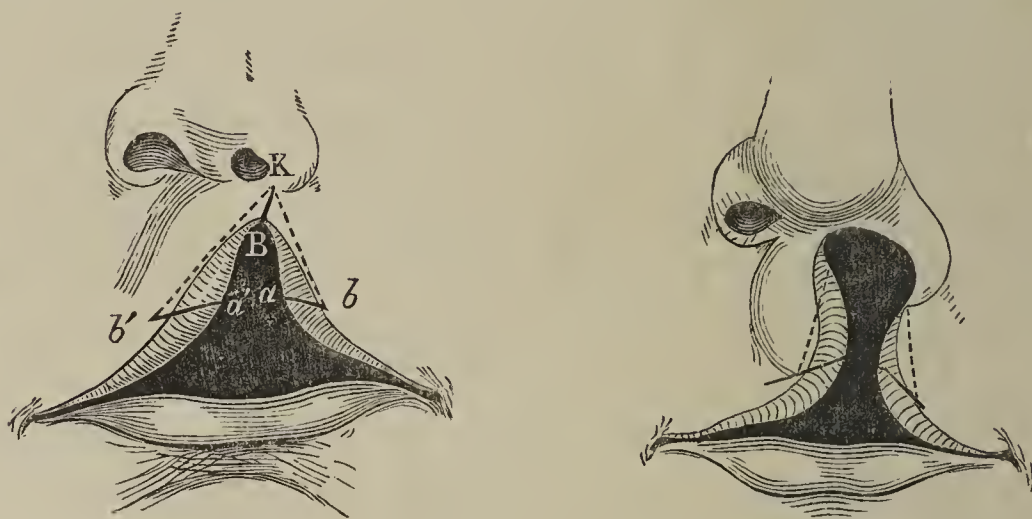
proved correct, that pressure on the brain, either from a depressed portion of bone, or an abscess in the immediate vicinity of the injury, or possibly both, existed, and accordingly I determined, if possible, to relieve this by operative interference. I made a crucial incision therefore over the seat of the injury, and found a stellate fracture of the frontal bone, apparently without any depression. I then applied the crown of a large trephine over the situation of the fracture, and removed a circular piece of bone. On examining its inner aspect, a portion of the vitreous table was found to be depressed. The dura mater was intensely congested, exceedingly tense, and bulged, hernia like, out of the opening. I then made an incision into the dura mater, hoping that pus would be found beneath it, but nothing but some turbid serous fluid was evacuated. Even the withdrawal of this was followed by considerable improvement, the respiration for a time ceased to be stertorous, the pulse rose to 64, the left pupil became less dilated, and sensation to the corneæ was restored. At 4 p.m. the pulse was 74; respiration 26; and the patient was able to swallow some brandy. At 9 p.m. the stertorous breathing returned. At 11.45 p.m. the pulse rose to 88; respiration 32; belly tympanitic; passes urine involuntarily.

August 12, 8.30 a.m.—Pulse 74; respiration 28; patient had remained very quiet during the night; when the arms are raised they fall as if quite dead; right pupil greatly contracted, left widely dilated. 9 p.m.—Patient remained much in the same state as in last report during the entire day. He gradually sunk, and died at 9.30 p.m. The necropsy made thirteen hours after death. On removing the calvaria the membranes were found intensely congested, and a large abscess between the cranium and dura mater was found pressing on the left hemisphere. It was a remarkable circumstance that the abscess was not found immediately connected with the portion of depressed bone. It is, I think, a circumstance much to be regretted, that the operation of trephining and elevating the depressed portion of bone was not performed, when the symptoms of pressure first manifested themselves.

Hare-lip.—On a former occasion I have drawn the attention of the profession to a method of effectually remedying hare-lip,^a by which the two defects which so frequently supervene after the ordinary operations for the cure of this deformity, viz., the notch at

^a Dub. Quar. Jour., Aug., 1870.

the red border of the lip, and the vertical sulcus or groove corresponding to the line of the cicatrix, are avoided. I mentioned the



importance of making use of the parings of the edges of the cleft as far as possible, and that many advantages are obtained by this method over the other procedures, when the principle of the utilization of the parings is adopted; the operations, namely, of Sédillot, Malgaigne, Collis, and Samuel Smith. These advantages are—First, that no subsequent curtailment of the flaps forming the projection at the lower extremity of the cleft is necessary; second, the procedure is applicable to all forms and varieties of hare-lip; third, there is no chance of portions of the soft tissues perishing from any twisting of them; fourth, there can be no subsequent puckering; fifth, there can be no subsequent notch; sixth, the possibility of any vertical sulcus or groove in the line of the cicatrix is prevented. The results of the cases I have operated on by this method, and which I have already published, show sufficiently the practical value of this procedure, and to these cases I may now add the following, the notes of which were taken for me by Mr. Agmon Vesey:—

CASE I. *Single Hare-lip*.—Jane G., aged eight months, was admitted into the Richmond Hospital, under my care, on August 22, 1870, suffering from single hare-lip, the fissure being on the left side. There was no cleft in the palate. Although the child was in excellent health I should have preferred deferring the operation until the patient was somewhat older; but, as the parents were most anxious to have the deformity removed at once, I determined to accede to their wishes, and on the 25th of the month I performed the operation in the manner described by me in the *Dublin Quarterly Journal*, August, 1870. Very little blood was lost

during the operation, as Nunneley's forceps were applied at each angle of the mouth. Two needles were inserted and the flaps approximated with the figure-of-eight suture. At the red border of the lip the edges were retained by fine entomologist pins. Seventy-two hours after the operation two of the pins were removed, and on the day following the remaining ones. On September 19th the patient left the hospital. The result was most satisfactory.

CASE II. *Double Hare-lip*.—Francis M'D., aged sixteen months, was admitted into the Richmond Hospital, under my care, on October 4, 1870, suffering from double hare-lip, with extreme projection of the pre-maxillary bone and cleft of the hard and soft palate. On October 8th I operated on the patient, having to modify the procedure somewhat owing to the complicated nature of the case. The operation was necessarily protracted and difficult, and during the performance of it, the child became very faint, but was restored by ammonia, and draughts containing a few drops of brandy. On October 11th two of the needles were removed, and on the 12th the remainder. On October 13th the union was quite complete, except at one point close to the septum of the nose. This, however, eventually completely closed. On the 20th October all the cut surfaces were completely and firmly united. There was no notch at the border of the lip, nor vertical groove in the line of the cicatrix. The result of the operation was in every way most satisfactory, and the improvement in the child's appearance was more striking than could have been anticipated. It was much to be regretted, therefore, that a fortnight subsequently the patient became affected with a severe attack of bronchitis, accompanied by convulsion fits, from which he did not rally, and eventually succumbed to the disease.

Imperforate Rectum.—One of the varieties of this deformity, namely, that which consists merely of a membranous obstruction of the anus, is one which not very unfrequently comes under the observation of the surgeon, and if the operation for the removal of this defect be undertaken sufficiently early, a favourable result in the great majority of cases may confidently be anticipated. The other forms of the defect, however, are much rarer, and among these may be mentioned those which consist in a deficiency in the lower part of the rectum. Of this rare form of the deformity the following case is an interesting example:—

William D., aged three days, was admitted into the Richmond Hospital on November 5th, 1870. The nurse stated that the day after the infant's birth, there being no motion from the bowels, he had a dose of castor oil. This not having the desired effect, she examined the anus, and discovered the malformation. That evening the child had its first attack of vomiting. The day after he was sent to the Richmond Hospital, and placed under my care. On admission the patient seemed quiet. There was no fulness round the anus, nor any vomiting. He passed urine freely. Shortly after this the vomiting commenced, and on my arrival at the hospital I found the infant in a state of extreme prostration; the skin intensely jaundiced; the abdomen full and tense; and the heart's action hardly perceptible. In truth, the patient seemed to be sinking rapidly, and, doubtless, would have soon done so, had the operation not been immediately undertaken. The patient was accordingly placed in the lithotomy position, and I made a careful and deep dissection to find the rectum. I had to carry the incisions to such a depth that I almost began to despair of being successful in the operation. However, to my great satisfaction, I at last arrived at the gut, opened it, drew it down, and fixed it by several points of suture to the edges of the wound. A very large quantity of meconium was evacuated at the time of the operation. The operation was performed at noon, and at 2 p.m., when I saw the patient again, he was greatly improved; there had been no hæmorrhage. At 9 p.m. the improvement was still more marked. There had been no return of the vomiting. He had passed large quantities of meconium during the day. The skin was losing its yellow appearance. For four days the patient progressed most favourably, but on the fifth day after the operation an erysipelatous inflammation of the scrotum was observed. It was kept well dusted with flour, and the patient was ordered two-drop doses of the perchloride of iron three times a day. This treatment answered admirably. On the eighth day the erysipelatous inflammation had almost disappeared, and on November 17th, the twelfth day after the operation, the patient left the hospital and returned home.

Modification of Syme's Rhinoplastic Operation.—J. M., aged thirty-nine, a native of Scotland, was admitted into the Richmond Hospital, under my care, on July 17th, 1871, suffering from complete destruction of the nasal bones, as well as the nasal processes of the superior maxillary bones, and the soft structures covering them.

The patient stated that seven years previously he had syphilis, for which he was treated in different places and by different practitioners. He was on more than one occasion brought under the influence of mercury. No course of treatment, however, that was ever recommended was carried out by him with any degree of care or regularity, and between the third and fourth years after he was first affected, the nasal bones became diseased, the soft parts ulcerated over them, and eventually the defect the patient suffered from on his admission into hospital, which consisted of a large opening, through which three fingers could be easily introduced into the nasal cavity, took place. Fortunately the soft parts constituting the tip of the nose remained intact, and these I determined to utilize in performing an operation for the restoration of the lost nose. As the tissues surrounding this truly hideous cavity appeared healthy, I determined to perform a rhinoplastic operation by the method suggested by Professor Syme, and to take the flaps for the formation of the new nose from the cheeks, not from the forehead, as in the Indian rhinoplastic operation, as originally introduced into European surgical practice by Carpué, and practised still in the Richmond Hospital with such signal success by my colleague Mr. Hamilton. I was very anxious also to adopt the suggestion of M. Ollier and Professor Von Langenbeck, and to make a partial division of the nasal processes of the superior maxillary bones, and bring them forward to act as buttresses to support and keep the flaps elevated; but I was unable to do so, owing to these processes having been formerly involved in the disease. Under these circumstances, I accordingly made two triangular flaps, with their apices above, at the nasal process of the os frontis, and their bases below, and having freely vivified the edges of the large oval-shaped opening, I transplanted the two triangular-shaped flaps towards the middle line, so as completely to cover the opening, and united them in that situation with fine entomologist pins and twisted floss silk sutures. The bases of the triangular flaps were in like manner united to the upper margin of the lower portion of the nose, which fortunately remained free from the disease, which had attacked the other portions of the organ. In order to fill up the defect at each side of the inner portion of the cheek, where, namely, the flaps had been taken, I performed another plastic operation, making the flaps somewhat quadrilateral in shape, and taking them from the soft parts covering the malar bone. The operation was, as all such procedures are, extremely difficult and tedious, but the

result was most satisfactory. The flaps united in their new situations by the first intention, and this I chiefly attribute to the singularly unirritating nature of the sutures I employed in the operation. The case progressed in every way most satisfactorily, and shortly after the patient left the hospital he got a photograph taken of himself, from which the annexed woodcut is copied.



Zeis' Cheiloplastic Operation.—The cheiloplastic operation of Professor Zeis, of Dresden, has two advantages over the operations usually practised for the restoration of the entire, or greater portion of the lower lip, those, namely, of Malgaigne, Syme, Serres, and Collis. There are first, the simplicity of its design, and facility with which it can be performed; and secondly, that no broad cicatrices remain (resulting from the defects that have to be left to fill up by granulation), in the situations where the flaps are taken for the formation of the lip. This operation is not yet, I believe, at all known in this country, but it is one which is held in high estimation in Professor Von Langenbeck's *Clinique* in Berlin. This procedure is best adapted for cases where the disease extends across the whole, or greater portion of the red border of the lip. This should be removed by a quadrilateral-shaped incision, and from the outer and inferior angles of the defect incisions should be made

downwards and outwards to the lower border of the inferior maxilla, terminating at about one inch and a quarter from the symphysis menti, and from the apex of the chin, two other incisions united above, should be made parallel to the first ones, but underneath the chin, and each of them from half to three-quarters of an inch in length. The soft parts included within these four incisions should then be dissected off the inferior maxilla as far as the inferior extremities of the two lower incisions (those, namely, underneath the chin), and these latter then permit the soft tissues of the chin to be pushed upwards, so as to completely fill up the defect made by the removal of the morbid growth. The frontispiece will, doubtless, assist in giving a clearer idea as to the nature and direction of these incisions.

The case on which I performed this operation was that of a man, aged fifty-two, who was admitted into the Richmond Hospital, under my care, in the early part of April, 1871. The epithelial growth, which originated in a wart on the left side of the lower lip, had extended across the whole of the red border of his lip, and a considerable portion of the soft tissues immediately below this was also affected with the disease. Although it was very extensive and of considerable standing (four years), as there appeared to be no glandular contamination, and the patient was otherwise healthy, I determined to remove the growth, and, subsequently, to restore the defect that would necessarily be made, by performing Zeis' cheiloplastic operation, which appeared to be specially well adapted for this case. The patient willingly acceded to have the operation performed, and the result was in every way most satisfactory. I feel no hesitation in confidently recommending this procedure, in similar cases, to all practical operating surgeons, for the reasons I have mentioned above.

Tabular View of One Hundred and Thirty-seven Surgical Operations performed by Mr. WILLIAM STOKES, in the Richmond Surgical Hospital, from January, 1870, to December, 1871.

AMPUTATIONS.

Date	Operation	Disease or Injury	Age and Sex	Result
Jan. 19, 1870	1. Supra condyloid amputation of thigh	Caries of tibia fibula and tarsus -	Male, 42	Favourable
Feb. 20, "	2. Supra condyloid amputation of thigh	Compound comminuted fracture of both bones of the leg	Male, 26	do.
March 21, "	3. Amputation of middle finger	Epithelioma - -	Female, 60	do.
May 26, "	4. Modification of Hey's amputation	Epithelioma of toes -	Female, 55	do.
May 31, "	5. Amputation of leg (Lenoir) -	Strumous disease of ankle -	Female, 45	do.
June 8, "	6. Amputation of middle finger	Finger crushed by machinery -	Male, 12	do.
July 20, "	7. Amputation of breast -	Scirrhus - - -	Female, 60	do.
Aug. 2, "	8. Amputation of thumb -	Necrosis following paronychia -	Female, 40	do.
Sep. 10, "	9. Amputation of thigh -	Femoro popliteal aneurism -	Male, 36	Unfavourable
Sep. 28, "	10. Supra condyloid amputation of thigh	Strumous disease of knee -	Male, 34	Favourable
Nov. 28, "	11. Amputation of thigh -	Gangrene following compound comminuted fracture of leg	Male, 40	do.
Feb. 8, 1871	12. Rectangular amputation of thigh	Suppurative inflammation of knee-joint	Male, 22	do.
June 20, "	13. Amputation of leg -	Strumous disease of ankle	Male, 25	do.
Oct. 2, "	14. Amputation of index finger -	Necrosis - - -	Male, 23	do.

PLASTIC OPERATIONS.

Feb. 2, 1871	15. Syme's rhinoplastic operation	Destruction of nasal bones from syphilis	Male, 42	Favourable
Feb. 16, "	16. Plastic operation -	Urinary fistula - -	Male, 30	do.
April 13, "	17. Plastic operation. Flap brought from forehead	Extensive cancrroid of the cheek -	Male, 67	do.
May 4, "	18. Modification of Flarer's operation	Ectropium resulting from the contraction of a burn	Male, 19	do.
May 16, "	19. Flarer's plastic operation -	Ectropium of upper eyelid -	Male, 25	do.
June 22, "	20. Plastic operation -	Ectropium of upper eyelid -	Male, 23	do.
July 26, "	21. Dieffenbach's plastic operation	Ectropium - - -	Male, 22	do.
Feb. 15, "	22. Plastic operation for penal fistula	Penal fistula - - -	Male, 24	Unfavourable
April 10, "	23. Zeis' Cheiloplastic operation	Extensive epithelioma of lower lip	Male, 52	Favourable
July 17, "	24. Modification of Syme's rhinoplastic operation	Partial destruction of nasal bones from syphilis	Male, 32	do.
March 8, "	25. Plastic operation -	Penal fistula - - -	Male, 26	Unfavourable
Dec. 8, "	26. Plastic operation -	Ectropium - - -	Female, 19	Favourable

EXCISIONS.

Feb. 2, 1870	27. Excision of dead bone -	Necrosis of tibia - - -	Male, 60	Favourable
March 20, "	28. Excision of dead bone -	Necrosis of metatarsus - -	Male, 62	do.
June 1, "	29. Excision of tumour -	Encysted tumour of lower eyelid	Female, 40	do.
June 1, "	30. Excision of ulcer -	Jacob's ulcer - - -	Male, 62	do.

EXCISIONS—*Continued.*

Date	Operation	Disease or Injury	Age and Sex	Result
June 8, 1870	31. Excision of tumour - -	Large encysted tumour of upper eyelid	Male, 45	Favourable
Aug. 10, „	32. Excision of eyeball - -	Chronic irido choroiditis - -	Male, 32	do.
Oct. 11, „	33. Excision of tumour - -	Encysted tumour on forehead -	Male, 10	do.
Oct. 11, „	34. Excision of sequestrum -	Necrosis of humerus - -	Male, 33	do.
Nov. 28, „	35. Excision of tumour - -	Large encysted tumour of eyelid	Female, 47	do.
Feb. 1, 1871	36. Excision of ulcer - -	Jacob's ulcer - -	Male, 50	do.
April „	37. Excision of tumour - -	Inflamed glandular tumour in the groin with symptoms resembling those of strangulated hernia, vomiting, constipation, &c.	Female, 40	do.

PERINEAL SECTION AND INTERNAL URETHROTOMY.

Jan. 2, 1870	38. Perineal section. Sir A. Cooper's operation	Impermeable stricture of the urethra	Male, 30	Favourable
July 21, „	39. Perineal section - -	Impermeable stricture - -	Male, 32	do.
Aug. 16 „	40. Internal urethrotomy - -	Urethral stricture - -	Male, 44	do.
July 17, „	41. Internal urethrotomy - -	Urethral stricture - -	Male, 60	do.

OPERATIONS FOR CATARACT.

Jan. 12, 1870	42. Von Græfe's modified linear extraction operation	Senile cataract - -	Female, 65	Favourable
Jan. 18, „	43. Von Græfe's linear extraction	Senile cataract - -	Female, 62	do.
Jan. 24 „	44. Von Græfe's linear extraction	Cataract - -	Male, 42	do.
Feb. 24, „	45. Von Græfe's linear extraction	Hard senile cataract - -	Male, 57	do.
March 19, „	46. Von Græfe's linear extraction	Senile cataract - -	Male, 64	do.
April 5, „	47. Von Græfe's linear extraction	Senile cataract - -	Female, 63	do.
May 10, „	48. Von Græfe's linear extraction	Senile calcareous cataract -	Male, 65	Unfavourable
July 12, „	49. Von Græfe's linear extraction	Cataracta nigra - -	Male, 64	Favourable
July 22, „	50. Von Græfe's linear extraction	Senile cataract - -	Female, 60	Unfavourable
Aug. 18, „	51. Von Græfe's linear extraction	Cataracta nigra - -	Male, 60	Favourable
April „	52. Von Græfe's linear extraction	Senile cataract - -	Female, 58	Unfavourable

TENOTOMY.

Feb. 16, 1870	53. Division of tendo-achilles -	Talipes Varus - -	Male, 9	Favourable
Feb. 23, „	54. Division of internal rectus -	Convergent strabismus - -	Male, 17	do.
March 9, „	55. Division of tendo-achilles -	Talipes Varus - -	Male, 12	do.
March 24, „	56. Division of tendo-achilles -	Talips Varus - -	Male	do.
May, „	57. Partial division of sterno-cleido mastoid	Torticollis - -	Male, 10	do.
Nov. 27, 1871	58. Division of internal rectus -	Convergent strabismus - -	Male, 14	do.

REDUCTION OF DISLOCATIONS.

Date	Operation	Disease or Injury	Age and Sex	Result
June 21, 1871	59. Reduction by Robert and Collins' apparatus	Dislocation into axilla - -	Female, 50	Favourable
Aug. 5, "	60. Reduction by Robert and Collins' apparatus	Dislocation into axilla - -	Male, 40	do.
Aug. 7, "	61. Reduction by Robert and Collins' apparatus	Dislocation at elbow, both bones backwards	Male, 13	do.
Sep. 20, "	62. Reduction by Robert and Collins' apparatus	Dislocation of elbow - -	Male, 23	do.
Nov. 19, "	63. Attempted reduction by Robert and Collins' apparatus	Dislocation of head of humerus forwards of five weeks standing	Male, 34	Unfavourable
Dec. 15, "	64. Attempted reduction by ropes and pulleys	Dislocation of head of humerus forwards of four months standing	Male, 52	do.
Jan. 15, "	65. Reduction by Robert and Collins' apparatus	Dislocation into axilla - -	Male, 41	Favourable
Dec. 14, "	66. Reduction by ropes and pulleys	Dislocation of head of humerus forwards	Male, 45	do.

OPERATIONS ON NÆVI.

Jan. 19, 1870	67. Ferguson's operation	Nævus on cheek - - -	Male, 3	Favourable
Feb. 23, "	68. Removal by ligature - -	Large ulcerated nævus on scalp -	Female, 21	do.
May 14, "	69. Ferguson's operation - -	Nævus situated on lower lid -	Male, 19	do.
June, "	70. Ferguson's operation - -	Large nævus situated on the back	Male, 3 months	Unfavourable
July 24, "	71. Liston's operation - -	The previous case - - -	—	Favourable
Aug. "	72. Liston's operation - -	Nævus situated close to umbilicus	Female, 3 months	do.

OPERATIONS FOR ENTROPIUM.

Feb. 16, 1870	73. Arlt's operation - -	Entropium with trichiasis - -	Male, 16	Favourable
March 9, "	74. Arlt's operation - -	Entropium - - -	Male, 18	do.
May 11, "	75. Wilde's operation - -	Entropium with trichiasis - -	Female, 23	do.
June 22, "	76. Arlt's operation - -	Entropium with trichiasis - -	Female, 19	Blind temporarily
Aug. 25, "	77. Wilde's operation - -	Entropium - - -	Female, 30	Favourable
Feb. 23, 1871	78. Arlt's operation - -	Entropium with trichiasis and distichiasis	Female, 35	
March 15, "	79. Arlt's operation - -	Entropium and trichiasis - -	Female, 32	do.
Nov. 27, "	80. Wilde's operation - -	Entropium - - -	Female, 26	do.

OPERATIONS ABOUT HEAD AND FACE.

Jan. 19, 1871	81. Liston's operation - -	Carcinoma of tongue - -	Male, 45	Favourable
Feb. 12, "	82. Removal by Maisonneuve's "ligature extemporanée"	Epithelioma of tongue	Male, 40	do.
April 6, "	83. Removed by V-shaped incision	Epithelioma of lip - -	Male, 77	do.
Aug. 25, "	84. The author's operation for hair lip	Hare lip - - -	Female, 8 months	
Sep. 3, "	85. Cauterization with potassa c. calce. Kirkpatrick's method	Cancroid ulceration on cheek -	Male, 65	Patients left hospital before treatment was completed
Sep. 30, "	86. Same treatment as last case -	Cancroid ulceration on cheek -	Male, 60	

OPERATIONS ABOUT HEAD AND FACE—*Continued.*

Date	Operation	Disease or Injury	Age and Sex	Result
Oct. 8, 1871	87. Modification of the author's operation	Double hare lip - - -	Male 6, months	Favourable
Feb. 1, „	88. Removal of tumour - -	Malignant tumour of scalp -	Female, 56	Unfavourable
April 5, „	89. Excision of growth and subsequent plastic operation. Flap taken from forehead	Epithelioma at inner angle of eye and extending across nose	Male, 36	Favourable
June 14, „	90. Evulsion - - -	Large nasal polypus - - -	Male, 56	do.
July, „	91. Evulsion - - -	Nasal polypus - - -	Male, 40	do.
July 12, „	92. Operation for extraction of bullet	Gun-shot injury. Ball entered behind the left ear	Male, 44	Unfavourable
July, „	93. Removal by V-shaped incision	Epithelioma of lip - - -	Male, 35	Favourable
Oct. 4, „	94. Operation for double hair lip	Hare lip - - -	Male, 5 months	Unfavourable
Sep. 21, „	95. Removal of a large polypoid growth growing chiefly from posterior wall of pharynx	Retro-pharangeal tumour -	Male, 12	Favourable
March 29, „	96. Evulsion - - -	Nasal polypi in both nares -	Female, 22	do.
March 23, „	97. Furnari's operation - -	Chronic pannus - - -	Male, 22	Unfavourable
July 26, „	98. Furnari's operation - -	Pannus - - -	Female, 19	Slight improvement in vision
Aug. 5, „	99. Iridectomy - - -	Large central opacity of cornea -	Male, 34	Favourable
Dec. 1, „	100. Critchet's operation - -	Complete corneal staphyloma -	Male, 21	do.
March 29, „	101. Iridectomy - - -	Complete myosis - - -	Female, 65	Unfavourable

HYDROCELE.

March 31, '71	102. Tapping - - -	Large double hydrocele - - -	Male, 27	Favourable
April 3, „	103. Tapping - - -	Hydrocele - - -	Male, 50	do.
May 18, „	104. Tapping - - -	Hydrocele of hernia vaginalis -	Male, 40	do.
Sep. 21, „	105. Tapping - - -	Enormous hydrocele of hernia vaginalis	Male, 71	do.
Sep. 23, „	106. Tapping - - -	Hydrocele of hernia vaginalis -	Male, 40	do.
Oct. 25, „	107. Tapping - - -	Large double hydrocele - - -	Male, 38	do.

MISCELLANEOUS OPERATIONS.

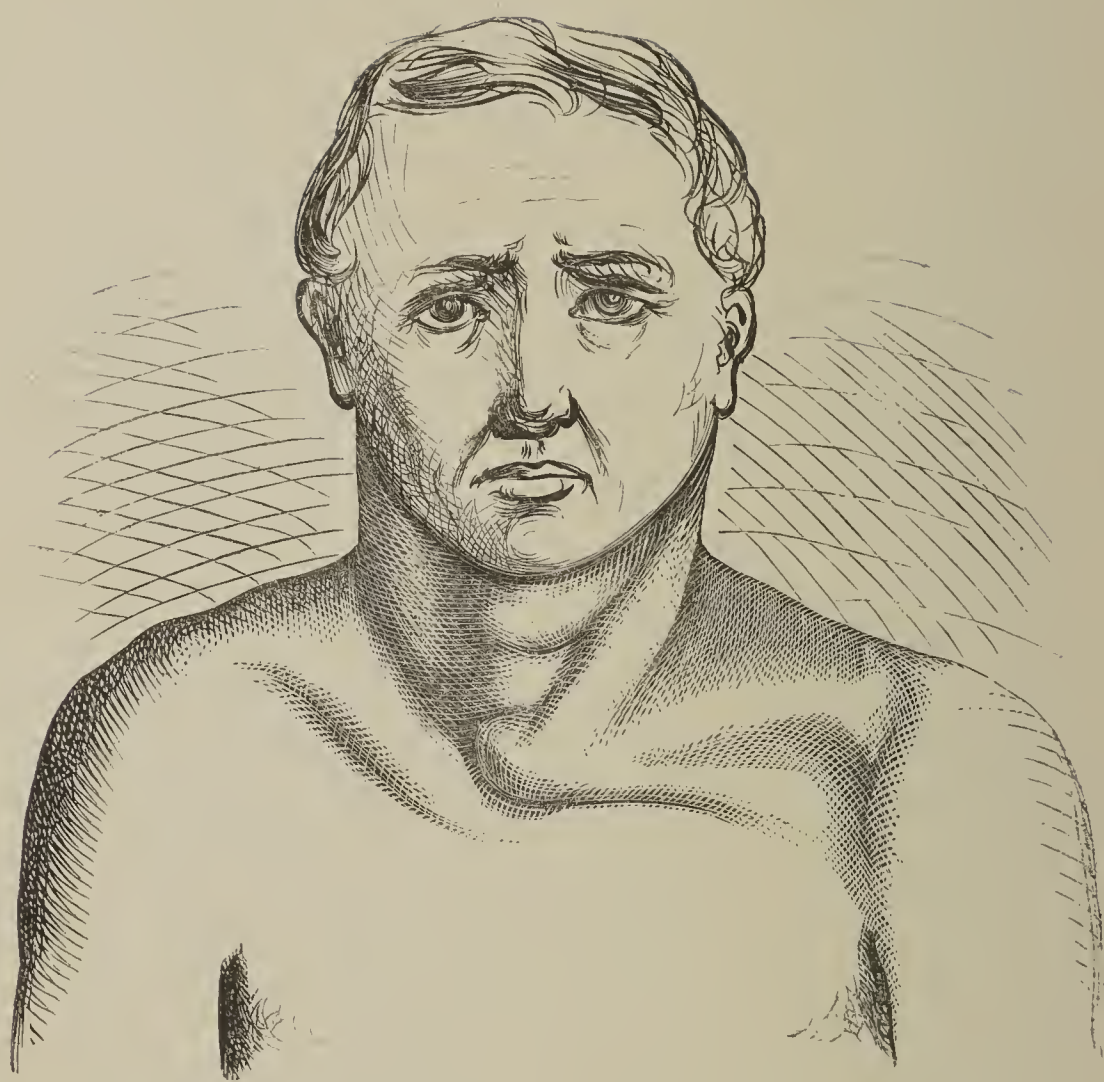
Sep. 3, 1871	108. Temporary deligation of the femoral artery by Porter's wire clamp	Femoro popliteal aneurism -	Male, 36	Unfavourable
Nov. 6, „	109. Operation for imperforate rectum	Atresia ani - - -	Male, 3 days	Favourable
Nov. 3, „	110. Castration - - -	Syphilitic tubercular hydro saccoule	Male, 26	do.
June 20, „	111. Tracheotomy - - -	Syphilitic laryngitis - - -	Female, 32	do.
June 1, 1870	112. Lithotomy - - -	Vesical calculus - - -	Male, 10	Unfavourable
Aug. 11, „	113. Trephining - - -	Fracture of os frontis with depression	Male, 18	do.
March 29, „	114. Castration - - -	Granular testis - - -	Male, 23	Favourable
	115. Herniotomy - - -	Strangulated femoral hernia -	Female, 71	Unfavourable

MISCELLANEOUS OPERATIONS—*Continued.*

Date	Operation	Disease or Injury.	Age and Sex	Result
Sep. 30, 1870	116. Operation for onyxis - -	Onyxis - - -	Male, 24	Favourable
April 22, „	117. Sir D. Corrigan's operation for varicose veins	Varicose veins - - -	Male, 21	do.
June 22, „	118. Nelaton's operation - -	Congenital phymosis - -	Male, 21	do.
June 22, „	119. Operation for fistula in ano	Fistula in ano - - -	Male, 24	do.
Sep. 4, „	120. Operation for fistula in ano	Fistula in ano - - -	Male, 14	do.
May, 1871	121. Herniotomy - - -	Strangulated hernia - -	Male, 75	Unfavourable
June 28, „	122. Operation for contraction of a burn	Cicatrix of burn on forearm -	Male, 2	Favourable
July, „	123. Circumcision - - -	Phymosis - - -	Male, 31	do.
July 6, „	124. Operation for onyxis - -	Onyxis - - -	Male, 20	do.
Oct. 6, „	125. Skin grafting - - -	Chronic ulcer of leg - -	Male, 60	Unfavourable
March 15, „	126. Operation for onyxis - -	Onyxis - - -	Male, 30	Favourable
March 22, „	127. Skin grafting - - -	Chronic ulcer on face of stump after amputation at ankle-joint	Male, 32	Unfavourable
April 27, '70	128. Introduction of Chassaignac's drainage tubes	Large chronic abscess connected with caries of sacrum	Male, 35	Favourable
May 4, „	129. Introduction of drainage tubes	Large chronic abscess at back of thigh	Male, 21	do.
May 20, „	130. Extraction of foreign body -	Portion of a large darning needle which had penetrated the elbow joint.	Female, 45	do.
July 20, „	131. Introduction of drainage tubes	Chronic abscess over scapula -	Male, 49	do.
July 21, „	132. Removal of fluid by aspirator	Chronic abscess - - -	Male, 28	do.
Aug. 21, „	133. Cutting on mesial line of perineum, removing contents of a chronic abscess, and a large amount of a phosphatic deposit in its parietes	Tumour in perineum - -	Male, 55	do.
March 8, „	134. Abernethy's operation -	Large chronic abscess situated over deltoid	Male, 15	do.
Dec. 6, „	135. Removal by excision of cicatrix	Contraction of arm from a burn -	Male, 2½ years	do.
Dec. 8, „	136. Circumcision - - -	Phymosis - - -	Male, 18	do.
Dec. 15, „	137. Introduction of Chassaignac's tubes	Abscess connected with osteitis and periostitis of femur	Male, 11	do.

ART. XVII.—*Case of Supra-sternal Luxation of the Clavicle.* By ROBERT W. SMITH, M.D., M.R.I.A., Professor of Surgery in the University of Dublin, Surgeon to the Richmond Hospital, &c., &c.

I DEEM the following case of supra-sternal luxation of the clavicle worthy of a place in the annals of surgical science, inasmuch as it is the first of its kind in which observation during life has been combined with examination after death, and both sources of knowledge brought to bear upon the elucidation of an injury of confessedly very rare occurrence.



William Baker, 60 years of age, was admitted into the Richmond Hospital, under my care, at half-past five o'clock on the morning of Sunday, the 7th of April, 1872. He was returning from races that had been held at Fairy House, some sixteen miles from Dublin, in charge of a float, laden with luggage of various kinds, and was sitting on the shaft of his float. When within a few miles of the city, he fell asleep, overcome by fatigue, and shortly afterwards dropped from his seat to the ground. The wheel did not pass over him, as he fell inside of it, but the horse, still going on, dragged the float over him obliquely, there not being room for his body between the ground and the bottom of the vehicle. After some time he was found lying on the road by the police, and was brought to the hospital without delay. I saw him between nine and ten o'clock, and found that he had sustained a compound luxation of the astragalus of the right foot, outwards. The resident student on duty had, without difficulty, replaced the bone before my arrival. There was an extensive gaping wound upon the outer side of the dorsum of the foot, through which the head of the astragalus had protruded.

In addition to this formidable injury, I found that the sternal end of the left clavicle was dislocated. The shoulder had fallen in towards the mesial line so far, that the end of the clavicle was pressing strongly on the trachea, causing a very great amount of dyspnœa. It formed a very striking projection in front of the trachea, giving to the sternal portion of the mastoid muscle an arched outline. It was a complete luxation, the articular extremity of the bone lying above the fourchette of the sternum, and apparently in contact with the inner margin of the sterno-mastoid muscle of the right side. From the acromion the axis of the bone was directed upwards, forwards, and inwards, so that between its sternal extremity and the first rib, a considerable hollow or interval existed, into which the point of the finger could be sunk.

When the man was placed in the sitting posture in bed, the deformity was increased, and the pressure of the displaced bone upon the trachea and œsophagus became manifested by distressing dyspnœa, hoarseness of the voice, and extreme dysphagia. The motions of the shoulder were, of course, impaired, and were productive of much pain.

When he was placed in the recumbent position, the pillow taken from under his head, and the hollow of the back of the neck well filled by a folded sheet, so as to allow the head to hang a little,

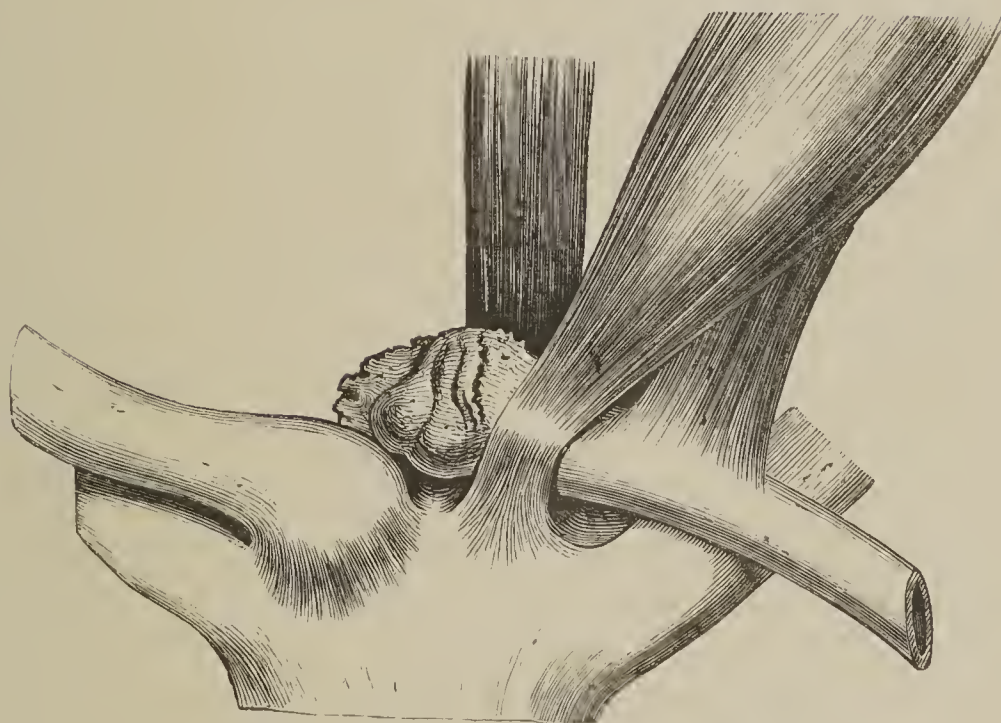
the dislocated extremity of the clavicle retired, and the symptoms of pressure on the air-tube and œsophagus ceased to present themselves; but, although the end of the bone no longer projected, it still remained placed above its natural level.

As long as this position was maintained, the patient did not suffer any distress; but whenever he sat up in bed, or even made the effort to do so, the original features of the injury were at once re-established and the dyspnœa and dysphagia renewed.

For some short time nothing worthy of note occurred, the man made no complaint and was cheerful, but after the lapse of about four days he became somewhat restless, his appetite was impaired, he suffered from thirst, and his sleep was broken. The tongue was furred, but the pulse remained undisturbed, indeed, it was rather slower than natural. The most unfavourable sign, however, connected with the case at this period was the condition of the wound, through which the astragalus had protruded. Its surface was of a greenish yellow hue, not painful when touched, quite dry, and its edges pale; with the exception of a few drops of matter under the skin at the lower extremity of the wound, there was no sign of suppuration or vital action of any kind. It looked like a sore on the body of a corpse. The general symptoms already mentioned gradually increased, the pulse became more frequent, the tongue dry, brown, and crusted, the lips parched, and the countenance expressed great vital depression. Still the man made no complaint, and evinced an amount of apathy that was remarkable. He died on the eleventh day from the occurrence of the accident.

Shortly after his death a careful examination of the state of parts connected with the dislocation of the clavicle was made, and gave the following results, which were confirmatory not only of the diagnosis, but also to a great extent of the opinions respecting the anatomical relations of the bone, expressed by those who have recorded cases of this luxation, without having had an opportunity of verifying their opinions by *post-mortem* investigation.

When the integuments were removed, the end of the left clavicle was seen lying above the sternum, beyond the centre of which it had so far passed as to be in contact with the inner edge of the right sterno-mastoid muscle. The sternal portion of its own muscle, crossed in front of it at some distance external to its articular surface, was arched forward, and in a state of tension, while the clavicular portion was relaxed. Posteriorly, the bone



rested on the sterno-hyoid muscles and front of the trachea. The anterior and posterior ligaments of the joint were, of course, ruptured, as was likewise the costo-clavicular or rhomboid ligament. The intra-articular cartilage was torn from its attachment to the sternum and cartilage of the first rib, and was carried upwards and inwards along with the clavicle. The only deviation from its normal state observable in the subclavian muscle was that it appeared relaxed and altered in direction.

CASE I.—Duverney, who was, I believe, the first to observe this luxation, mentions the case of a girl sixteen years of age, who died in consequence of a fall from a considerable height, and in whom the sternal end of the clavicle was displaced towards the larynx. “Se portait vers le larynx.” All the ligaments were torn. This statement is so very brief and vague that we are left in doubt as to the precise seat and direction of the displacement.

CASE II.—In the *Edinburgh Medical and Surgical Journal*, Vol XLVII., Mr. Macfarlane, Senior Surgeon to the Glasgow Royal Infirmary, has recorded a case of the injury under consideration. A labourer, when in a state of intoxication, fell down stairs and alighted on his right shoulder, which was supposed to be dislocated. Two days after the occurrence of the accident he applied at the infirmary for advice. He was able to use the hand and forearm but not the shoulder. At first sight the clavicle appeared to be fractured, but on more accurate examination an unusual swelling was observed immediately above, and in close contact with, the upper edge of the sternum, which, on tracing the clavicle, was found to depend on a dislocation of that bone into the supra-sternal space. There was a distinct tumour at the sterno-clavicular articulation, and the shoulder, upon the side of the injury, had fallen forwards, but the functions of respiration and deglutition were not affected, the end of the bone not being so far displaced, as to press on the trachea or œsophagus.

CASE III.—In his memoir upon luxations of the clavicle, Baraduc relates the following case:—Gabriel Paris, aged forty-three years, was admitted into the hospital, “Saint Antoine,” on the 4th of October, 1839. In a wrestling-match he had been thrown backwards with violence, the summit of the left shoulder and the left side of the head striking the ground; but the former principally sustained the shock.

Upon examination, the internal extremity of the clavicle was found resting upon the upper border of the sternum. When the head was bent forward strongly upon the chest, and pressure made in the V-shaped space between the tendons of the sterno-mastoid muscles, the articular surface of the bone could be plainly felt. The tendon of the left sterno-mastoid was projected forward by the luxated extremity of the clavicle, across which it was carried. The sterno-hyoid muscle, it was presumed, lay directly behind the end of the bone.

Below the internal third of the clavicle there existed a very evident depression, into which the finger could be sunk; it was limited below by the first rib, gradually faded away externally, and ceased about two inches from the sternum. From the facility with which the finger could be sunk into this depression, it was considered as almost certain that the subclavian muscle was torn. This want of resistance, and the separation (amounting to nearly an inch) between the first rib and the lower surface of the clavicle, appeared to demonstrate that the costo-clavicular ligament was likewise ruptured.

CASE IV.—In the 14th volume of the *Buffalo Medical Journal*, Dr. Rochester has recorded the case of a man aged forty-four, who, in August, 1858, while seated upon a load of wood, was caught under the bar of a gateway and violently crushed, the right shoulder being forced downwards and a little backwards. Dr. Rochester saw him very soon after the accident, and found, on examination, that the sternal end of the right clavicle had been luxated upwards, so far as to rest upon the front of the thyroid cartilage, causing much pain, dyspnœa, and loss of speech.

CASE V.—In the 3rd volume of the *Dictionnaire des études médicales*, Sedillot has briefly described the symptoms which were present in a case of *incomplete* luxation of the sternal extremity of the clavicle upwards. The right shoulder was slightly depressed, and the superior and external angle of the scapula was carried downwards, forwards, and two or three lines inwards, while its inferior angle, approximated to the spine, elevated the integuments.

Between the sternum and clavicular attachments of the sterno-mastoid muscle, there was discovered an osseous projection formed by the sternal extremity of the clavicle. The sternal portion of the

muscle was stretched, the clavicular relaxed; the head was inclined towards the affected side.

CASE VI.—A man named Etienne Caréron, aged thirty-nine, was admitted into the hospital of La Charité, under the care of Velpeau, for an injury of the left clavicle, caused by his having been squeezed between a loaded cart and a post. He was endeavouring to back the wheel of the cart, when the horse, making a false movement, drove the shaft against his left shoulder in such a manner as to push it downwards and forwards, while, at the same time, the right shoulder, pressed against a post, aided the impulsion inwards.

On examination, the sternal extremity of the left clavicle was found to have been luxated upwards and driven inwards so far that its articular extremity corresponded to the right sterno-clavicular articulation, and was covered by the sternal portion of the sternomastoid muscle.

CASE VII.—Malgaigne states that an example of this rare luxation occurred in his own practice in the hospital of St. Louis, but he has given no particulars of the case.

It will be seen from the preceding *resumé*, that the archives of surgical science, previous to the publication of the present case, contained only seven examples of the injury under consideration. The case I have described constitutes the eighth, and is peculiarly valuable as being the first (as far as I am aware) in which the anatomical characters of the injury were accurately established by *post-mortem* examination, for the account given by Duverney is totally destitute of value, as a dissection of the injury.

It is a luxation of necessarily rare occurrence, for it not only requires for its production that the force applied should be very great, but that it should also act upon the shoulder in an unusual direction, viz., downwards, inwards, and probably backwards. The result of this threefold impulsion is that the clavicle, converted into a lever of the first order (the fulcrum of which is constituted by the first rib) is forced at its sternal extremity upwards and inwards.

[NOTE.—Upon the principle of “better late than never,” I wish to correct an error which appeared in my paper on “Fractures of the Sternal End of the Clavicle,” published in the number of this Journal for August, 1870. At line seven from the bottom, page 16, the words “sterno-clavicular” should be “acromio-clavicular.”—R. W. S.]

ART. XVIII.—*Report on Cutaneous Statistics, derived from Private Practice.* By H. S. PURDON, M.D., L.R.C.P., L.R.C.S.I., Physician to the General Hospital and to the Hospital for Diseases of the Skin, Belfast; Honorary Member, New York Dermatological Society; lately Editor *Journal of Cutaneous Statistics*.

FOR a considerable time I have kept a note of all cases of skin disease occurring in private practice. Any case of interest has been accurately taken as regards diagnosis, history, and treatment. The present paper will be to notice briefly some of these cases. I have already given a statistical account of 5,700 consecutive cases, entered and treated at the Belfast Hospital for Diseases of the Skin (*Dublin Journal of Medical Science*, October, 1872). The present communication may be regarded as a supplement to that. The following table of 1,000 cases is arranged for convenience in alphabetical order:—

Disease.	Number of Cases.	Disease.	Number of Cases.
Acne - - -	61	Pityriasis Versicolor - -	52
Alopecia areata - -	5	Psoriasis - - -	36
Atrophia unguium - -	1	Pityriasis Rubra Acuta - -	1
Condylomata - - -	10	Pigment Discoloration - -	1
Canities - - -	4	Phtheiriasis - - -	20
Callositas - - -	5	Pernio - - -	12
Cicatrix - - -	3	Prurigo - - -	1
Dermatitis Venenosa - -	2	Pruritus Ani - - -	7
Encysted tumours of scalp	19	„ Vulvæ - - -	1
Eczema - - -	302	Purpura - - -	4
Erythema - - -	30	Rupia (Syphilitica) - -	1
Epithelioma - - -	15	Scirrhus of Mammæ - -	4
Ephidrosis - - -	10	Seborrhœa Furfuracea - -	20
Erysipelas - - -	18	„ Oleosa - - -	1
Ephelis and Lentigo - -	8	Syphiloderma - - -	28
Furunculosis - - -	20	Scabies - - -	49
Fibroma - - -	2	Scrofuloderma, &c. - -	109
Herpes Zoster - - -	3	Tinea Circinata - - -	19
Hypertrichosis - - -	1	„ Tonsurans - - -	12
Hypertrophia unguium - -	3	„ Kerion - - -	1
Keloid - - -	1	Ulcera - - -	20
Lupus - - -	8	Urticaria - - -	30
Milium - - -	2	Verrucæ - - -	6
Nævus - - -	6	Xanthelasma - - -	1
„ Spilus - - -	2	Xeroderma - - -	2
Omidrosis - - -	1		
Onychia - - -	20		1,000

Acne occurred chiefly in young people, the face and chest, especially the back, being the favourite seat of eruption. This disease, as defined by Willan, consists in "tubercular tumours slowly suppurating," and is an affection of the glandular apparatus of the skin, the seat of which is in the sebaceous follicles, arising either from scrofula, exposure to excessive heat, dyspepsia, derangement of the uterine functions, or debility. Scrofulous acne occurs chiefly on the face, are large and dusky in appearance, whilst the syphilitic are distributed over the whole body, of a characteristic colour, especially the areola at base, and when they disappear leave fine epidermic scales, that remain for some time. One case may be briefly mentioned. The patient, a young gentleman aged sixteen, had his face literally covered with an extensive eruption of slowly suppurating pustules, with a red hypertrophic base. His health was excellent, and no assignable cause could be attributed for the disease. I prescribed aperients, and opened every other day a few of the little elevations with a lancet, then through a capillary lymph tube injected, as recommended by Dr. Ross, of London, a drop of nitric acid, which excited a new inflammation, so to speak, that caused obliteration of the follicle. Generally speaking, sulphur, either in lotion or ointment, is successful in removing the disease, provided there is not much acute inflammation present, whilst constitutionally tonics are indicated as the citrate of iron and quinine. If the shoulders are the seat of the eruption removal of flannel from off the skin is absolutely necessary. Lichen of the face, and in rare cases small lupoid tubercles are liable to be mistaken for acne. In very inveterate cases a strong creosote ointment is often serviceable.

Alopecia areata, which I believe is non-parasitic, should be treated by frequent application of blistering fluid, cod-liver oil, or dilute nitric acid, or rum and sweet milk may be prescribed.

The case of *atrophy of the nails* was incurable; no syphilitic taint could be detected; debility and weakly parentage were considered to be the essential causes of the disease. In the three cases of *hypertrophy of the nails*, all of which occurred in young ladies, a solution of gutta percha dissolved in chloroform, and to which some carbonate of lead was added, was painted over the nails daily, after first scraping and filing them, and with good results.

All the cases of *condylomata* which had a broad base were touched as occasion required with a strong solution of chromic acid. This is a deeply penetrating caustic, having a great affinity for

oxygen, and giving rise to but little pain. In *callosities*, removal of pressure and subsequently the use of a solution of potash was the plan generally adopted. The course and duration of a callus depends upon the extent and continuation of friction and pressure. M. Vernois in his work has given an accurate table of the callosities produced in the various arts and occupations, chiefly peculiar to the French, and which will well repay perusal.

Dermatitis Venenosa.—Inflammation of the skin from the action of acrid irritants is well known to the profession. The two cases noted as such were treated on general principles.

Eczema occurred in 302 instances, fully one-third being in infants, duration of disease ranging from a few weeks to two years. Mr. Erasmus Wilson's excellent instructions for the treatment of eczema in children were adopted in all cases. It is well known that eczema in the earlier periods of life usually attacks the head and face; in adults the body, and in old people the lower extremities. Arsenic was seldom prescribed, except in the case of infants, and then given in the form of Wilson's ferro-arsenical syrup. Under the name eczema some forms of erythema, impetigo, and lichen are included, as they are generally merely stages of the complaint. One case of lichen was the variety known as lichen planus; another lichen circumscriptus, the papules being collected into circular elevated patches, rough and dry, the margin slowly extending. The patient was aged twenty, and employed in a merchant's office. He had suffered from the disease for about six years, the posterior parts of both thighs being chiefly affected. Under the influence of cod-liver oil, arsenic, and locally an ointment containing oil of cade, he recovered, and has had no return of the disease. I should mention that his family was consumptive. Another case occurred in the person of a young lady, from Moneymore; duration of the disease ten years. The eruption generally disappeared in summer, only to return again in winter. Her catamenia were irregular, and to this disease was due. For eczema rimosum of the hands blistering, as recommended by M'Call-Anderson, has been found most successful. If there is much infiltration of the subcutaneous tissue small doses of the bichloride of mercury are useful. The patient for some time is constantly to wear gloves, especially those made of india-rubber. I have never observed this variety in those who work amongst greasy substances, as butchers for example. In lichen of the hands, which occasionally occurs as a sequel to an attack of eczema rimosum, Hebra's lithargyre

ointment is a very good application, whilst in lichen of the face occurring in young people, and which may be mistaken for acne, our chief reliance is to be placed in salines, especially in purgative doses. After vaccination an eruption of an eczematous character occasionally occurs, usually attributed by the mother to impure lymph. These infants are generally of a strumous stock, or possess a delicate and easily irritated skin; but, indeed, any disorder occurring after vaccination is apt to be attributed to the operation. An interesting case of eczema erythematodes was sent to me April 22nd, 1871, by Dr. Trimble, of Castlebellingham. The patient was a clergyman, aged forty, and always had the best of health. The disease commenced three years previously without any cause on arms. On examination patches of eczema erythematodes were visible on arms and chest, whilst slight pigment staining could be observed at intervals, showing the existence of the disease in those places formerly. The disease gave no pain or annoyance. He had been in the habit of wearing coloured flannel shirts, and which probably containing aniline dye, produced in the first instance a "dermatitis toxica." The case of an elderly gentleman, Mr. B., aged seventy, is worthy of note. Lately he had suffered a good deal from attacks of bronchitis, and had been attended by Dr. Manley, of Whitehouse, whom I met in consultation on the case. The patient's tongue was covered with a dirty creamy fur, and which I was informed was habitual. The eruption occurred on the back, was intensely itchy, dry, and inclined to be scaly. Here and there little patches of raised, dirty, and of a green-looking colour were exhibited, similar to what is observed in some forms of xeroderma. The diagnosis was at first somewhat difficult. Inveterate itching is a common symptom in eczema; occasionally, however, we have a neuralgic element to deal with; hence a variety might be called neuralgic eczema. Such a case presented itself about eighteen months since. The patient, a lady aged forty-six, mother of a large family, very thin, pale, nervous, and irritable, became attacked by eczema of both legs some three years previously. The disease never totally disappeared, although alleviated by treatment. Latterly, in place of itching neuralgic pains were complained of. The affected skin was so irritable that even simple ointment made the pain worse. I treated symptoms so to speak at first by morphia at night, quinine and iron during the day, and locally brushed over the diseased patches a strong solution of nitrate of silver dissolved in sweet spirits of ether, as recommended

by Wilson. Subsequently zinc ointment completed the cure. I may note in passing that a small dose of chloral (ten grains) is very serviceable in similar cases for procuring sleep. For chronic eczema of the feet the Vienna plan of treatment by strapping the affected part with emplastrum plumbi spread on strips of linen is that to be recommended, provided the disease is chronic. Eczema is held to be a primitive lesion of the connective tissue with a secondary effect on the epithelial (*Annales de Dermatologie et de Syphilographie*). The diffuse character of the eruption is supposed to be due to the vessels being affected, also the glandular apparatus of the skin.

Erythema.—I shall only mention one case. A young gentleman, who appeared to his friends in perfect health, one evening suddenly took ill; his face was swollen, eyes nearly closed, and skin presented a bright erythematous rash, whilst in some parts wheals were visible. His mother (although there was no sore throat) immediately put the attack down as one of scarlatina—a deception which he kept up. From peculiar smell, appearance of patient, and urine, and a few questions asked him privately, I found the attack to be due to the administration of copaiba, which he was taking for gonorrhœa—a drug that is occasionally useful in psoriasis. The cheeks of middle-aged people are often coloured red, by streaks of distended blood-vessels, which gives to the cheek a peculiar, mottled appearance. This appearance has been described by Dr. Brinton, who, in such cases, recommends a careful examination into the state of the urine. I have at present a similar case, in a maiden lady, aged thirty-eight. Little can be done to improve her appearance or condition.

Furuncular affections, occurring in people advanced in years, is often a grave complaint. Mr. S., aged sixty-eight, consulted me in the summer of 1871, for an attack of boils, some of which were of large size, and very painful. The previous summer he had suffered from a similar attack, and which he attributed to eating a great deal of fruit; he was also gouty, and had been treated for some time by Sir Henry Thompson for an affection of the bladder, which, however, was now quite well, but he still drank a good deal of Vichy water, which had been prescribed. Mr. S. generally went to Harrogate every year. When I saw him he was literally covered with boils in different stages, and confined to bed; pulse very weak and slow. Complained much of the pain caused by two large boils on back, in lumbar region, and which

prevented any sleep. I tested the urine for sugar, but found none. The treatment adopted in this case was, beef-tea, given frequently, eggs, and champagne. Morphia at night, and an iron quinine, and sulphate of magnesia mixture, prescribed. To the boils various remedies were tried, as endeavouring to cause them to "abort," by touching the furuncle, in early stage, with nitrate of silver; to others pressure was applied; however, they generally suppurated, were then lanced, and dressed with an ointment of opium and zinc. Poulticing was out of the question, as it not only increased the pain, but also produced a new crop of boils, owing to tone of skin being still further weakened by heat and moisture. Several of the boils partook of the character of carbuncles, and were surrounded by what is called by Indian surgeons a "collar of brawn;" to these, the "core" of which was large and long in separating, nothing did so well as the household remedy of brown soap and sugar. The attack lasted fully two months, and was evidently due to a general break-up of the constitution. At first I was inclined to ask myself if there could be any fungoid germ in the blood to cause the persistent nature of the attack. Dr. Eade, *Lancet*, December 11th, 1869, holds to the fungoid nature of carbuncles, an opinion first put forth by Mr. Startin, who has seen these cryptogamic growths, and demonstrated same with the microscope. Polli, of Milan, holds a similar view in regard to the blood origin of Furunculi; indeed, some impurity of the blood lies at the bottom of all these furunculoid inflammations; sometimes it is retained urea, and we know that an attack of boils is often observed in Bright's disease, in diabetes, and occasionally in some liver complaints. I have no faith in the hypo-sulphite or bi-sulphides of soda, or magnesia, or in sulphurous acid. I have often prescribed the bi-sulphide in diseases of blood origin, and the only action it seemed to have was that of a diaphoretic; to my mind quinine or bromide of iron are more suitable. This patient died some ten months after this attack, already described, from senile marasmus. Another case that I saw in consultation with Dr. Ball, occurred in the person of a gentleman, aged about fifty, of a full gouty habit, and free liver. He irritated a pimple on upper lip with snuff, of which he was an inveterate taker. The pimple rapidly assumed a carbuncular character, and the whole lip became enormously swollen; there was constant throbbing pain, and dribbling of saliva from the mouth. In this case we had a gangrenous inflammation, so to speak, occurring in a gouty habit, the starting point of which was a simple pimple, due,

probably to a dead sebaceous gland, and the exciting cause, the irritation of the snuff. We prescribed colchicum tonics and good plain diet, whilst incisions had on two separate occasions to be made into lip, to allow the escape and separation of dead cellular tissue. Facial carbuncle is often a fatal disease, and commences like a simple pimple on upper lip, œdema rapidly sets in, and dusky red induration. Mr. Smith has described the disease in "Holmes's System of Surgery." Pyæmia is common, due to the areolar tissue becoming disintegrated, and connexion of facial vein with the ophthalmic and jugular veins, as also the great vascularity of the part.

Fibroma, or polypus of the skin. This case did not present any features worthy of notice.

Herpes.—Any variety of herpes is seldom observed by a specialist, unless some very unusual symptoms should occur. The disease generally runs a rapid course, and the patient is well in a few days. Only three cases of herpes are entered. In one case, H. Zoster, I prescribed ergot of rye and steel, as recommended by Dr. Woakes, who holds that herpes zoster is a neurosis, the eruption and neuralgic pain being due to effusion of liquor sanguinis from the ultimate branches of the artery, in the course of which the symptoms appear, and the cause of the effusion in this disease is due to a temporary suspension of the regulating influence exercised over the minute arteries by the sympathetic nerve fibres distributed there, and which suspension he believes ergot removes, by restoring the tone of the vessel, and allowing absorption of effused fluid to take place. The pain is caused by this effusion being between the fibrillæ of the sensitive nerve. As Dr. Anstie has remarked, "herpes may attend neuralgia of any superficial nerve." My other case of herpes occurred in the person of an assistant-surgeon in the Royal Navy. He had been troubled for several years with herpes præputialis, and tried various remedies. Upon examination I found that the vesicles, which had all recently burst, were chiefly confined to the prepuce, which was very long. Moreover, he had what may be termed "urethrorrhœa," accompanied by extreme morbid sensibility. I recommended circumcision as affording the best results, and to which he would not submit.

Keloid.—This case occurred in a gentleman, aged fifty-two, upon the left leg, and was of the variety known as "true keloid." He was brought to me by Dr. Whitla, of Monaghan, October 13th,

1871, when I was told the following history. The gentleman had had albuminuria about twelve years previously, from which he had completely recovered; the urine, however, contained a good deal of urate of ammonia. The present skin disease commenced eighteen months ago on the leg, and has spread since then to present size. The patch, on examination, was elevated to a considerable extent; red, and painful, especially after being handled, and had a peculiar elastic feel. I ordered a mixture containing iron wine and Fowler's solution, and to the affected part compresses wet with liquor plumbi acetat. I have since heard he is a little better, but disease has not disappeared, nor is it likely to do so.

Lupus.—The cases were eight in number. The rapid advances made of late years in the therapeutics of lupus have removed this disease from the incurable to the curable class. The treatment of lupus is purely local, and the chief object to be attempted is to promote absorption of infiltrated lupoid matter, which is accomplished by nitrate of silver, acid nitrate of mercury, or potassa fusa. One of the above cases was the variety known as lupus erythematoses. The patient was a young lady, aged twenty-two; duration of disease six years; both cheeks were affected, although originally the disease was confined to forehead and upper part of nose; the lupus had extended back amongst the hair, causing them to fall out, and with a lens numerous little orifices of the dilated sebaceous glands were observed. Upon one part a firmly adherent crust was attached to the skin. The parts that the disease had first attacked were of a white colour, and firm feel, owing to a new growth of white fibrous tissue. She had been treated by various plans, but unsuccessfully, and placed herself under my care in Belfast. As the disease was not only extensive but also obstinate, I had the advantage in this case of Mr. Erasmus Wilson's opinion, who advised frictions with juniper tar soap, and the use of a weak iodide of sulphur ointment. Cod-liver oil was given. We were prevented from giving arsenic (of which the lady had taken a good deal), owing to the smallest dose—two drops of Fowler's solution—now causing salivation and swelling of the tongue. Her family history, I should mention, was bad, phthisis having carried off several.

Omidrosis.—This case occurred in the person of a captain of a steamboat. His feet were affected, from which was exhaled a very disagreeable and offensive odour; they were also cold, clammy, and the skin peeled off. As he had been abroad a good deal, and suffered from ague, I prescribed quinine, whilst locally, a powder

containing carbolic acid, dried alum, starch, chalk, and oil of lemon, was dusted over feet and stockings.

Pityriasis Versicolor was observed in fifty-two instances. One case was due to contagion; a wife contracted the affection from her husband. I have frequently observed this disease in phthisical persons; lotions containing bi-chloride of mercury or sulphurous acid were generally prescribed. In some cases tincture of iodine answered better. For obstinate cases sulphur fumigations are more useful, and the solution of the chloride of arsenic internally to change the soil, so to speak, upon which the parasite grows.

Psoriasis is essentially a scaly complaint, relapses being the rule. Arsenic is the great remedy for it, especially Pearson's solution. Arsenic stimulates the epithelial structures. Quite recently Professor Gamberini, of Bologna, has recommended the alcoholic tincture of corrupted maize for internal use in psoriasis, and reports case cured by it. The moderate use of alcoholic stimulants do no harm in psoriasis, and are, I believe, beneficial. Two cases I may briefly note. The brother of one of our medical students came to me, early in the present year, with an extensive eruption of psoriasis which had only recently appeared. As there was not much congestion present I ordered the internal and local use of carbolic acid. In about four weeks the eruption had faded, and finally disappeared. If carbolic acid is to prove beneficial it will be manifest in a couple of weeks. In some people the acid gives rise to giddiness. The local use of this remedy requires caution, and is not suitable for all cases. In a case of same disease sent me by Dr. Dundee, of Carmoney, patient a stout healthy-looking farmer's daughter, carbolic acid could not be borne at all. Mr. E., aged forty, from county Armagh, was, except a few places on arms and legs, and face, I may safely say, entirely covered with an eruption of psoriasis; skin thickened and hard to touch. Twenty years before he had had his right thigh amputated for disease of knee-joint. Skin affection occurred some eight years since. Has latterly become rather corpulent. His mother died from "decline." This case has been under observation for some three years, and he has consulted two eminent London dermatologists. All our plans of treatment hitherto have been unsuccessful, but I am happy to be able to record a very rapid improvement since he has commenced to constantly wear a suit of vulcanized india-rubber, made for him by Wilmot, Holt & Co., of Belfast, and I expect that in a short time the disease will be entirely

removed. In a letter received from M. Hardy, of St. Louis' Hospital, Paris, this month, October, he informs me that for certain forms of chronic skin maladies, nothing answers so well as india-rubber dressings to exclude the air, keep in the perspiration, and thus macerate the hardened epidermis.

Pityriasis Rubra Acuta.—Mr. W. B., aged forty, married, of good constitution, had an attack of rheumatic fever in Australia, in 1865. Since his return to Ireland has been troubled more or less by rheumatic pains, but not latterly; is sometimes, however, dyspeptic. During the autumn of 1871 felt out of health, and complained of loss of appetite. Shortly after a red-coloured blotch appeared on his chest, and in about two weeks spread over entire body. He had been treated with arsenic, sulphur, mercury, &c., for some two months before I saw him. I found him confined to bed, very weak, and troubled with a slight cough; the urine was high-coloured from urate of ammonia; skin of whole body red, dry, and covered with brawny scales, which rapidly exfoliated. The hair was also falling out. Every day the bed was emptied of nearly a coal-bucketful of scales. The redness of the skin disappeared on pressure. The nails were easily broken, and of a dirty dry appearance. Without entering into details I may say that the general symptoms were slight, compared with extent of disease. The treatment adopted was nourishing food, cod-liver oil, which agreed with him, and of which he could take a large quantity, and a tonic mixture of dilute nitro-muriatic acid, in gentian. To relieve the kidneys he had a dose of the compound jalap powder every third or fourth night. Locally a liniment consisting of oxide of zinc, olive oil, and lard, was smeared three or four times daily over entire body. No water or soap to be used. To the more obstinate parts, as the hands, a solution of nitrate of silver was applied. This patient completely recovered. True pityriasis rubra generally ends fatally. I have classified the above under that name, as it resembled it in nearly all particulars.

Prurigo.—One genuine case of prurigo presented itself six years ago to my notice. The patient, a lady aged fifty-six, lived in the county Meath. She informed me that her life was rendered miserable owing to her disease. Little or no sleep could be obtained. Some years previously she had consulted the late Dr. Neligan, of Dublin, whose prescription I saw, and from which, for several years, great benefit was derived. He had evidently regarded the disease as of neurotic origin, and prescribed very large doses of extract of

nux vomica. The lady's skin was very dry, darker than natural, and wrinkled from absorption of fat. The normal lines and furrows were deepened. The pigmentation best marked where she had been obliged, owing to the itching, to scratch most, I recommended her to use the Turkish bath, and prescribed a stimulating diuretic, whilst at night she had a full dose, ten grains, of quinine as an antiperiodic. Prurigo and pruritis have only one symptom in common—itching. The papules in the former are only found in places covered by hair. The *arrectores pilorum*, according to Dr. Derby, attain an unusual degree of development, and, through the increased traction exerted on the hair, there results a more vertical position of the hair, as also a hernial protuberance of the inner wall of hair follicle, and outer root sheath. Moreover, a serous exudation takes place at base of pruriginous papule. True prurigo is a rare disease in this country, although pretty common in Southern Germany.

For *Pruritus* (all the cases of which, with one exception, were pruritus ani), the application of sulphurous acid proved successful. Pruritus ani is generally due to a fungus; the acid destroys this, and thus cures the disease. No doubt the portal circulation is often at fault, and which is relieved by aperients. The case of pruritus vulvæ occurred in a female of forty years; the mucous membrane exhibited not only the marks of scratching, but also little aphthous spots, like to those seen inside the cheeks of children, due to the fungus, the *oidium albicans*. A lotion of borax, morphia, glycerine, and water, relieved the disease. Bromide of ammonium was administered as a temporary sedative.

Seborrhæa Furfuracea, or pityriasis capitis, commonly called "dandriff," was well-marked in one case, and which I select for the purpose of illustration. Mr. T., aged thirty, living in Lisburn, consulted me for an affection of the scalp. His hair was rapidly falling out; scalp covered with white, thin, shining scales, which were continually undergoing separation. The loss of hair, as is usual in this disease, was most abundant upon the lateral regions of the crown. As he was slightly anæmic, iron was prescribed, and locally the head was to be sponged with the following:—Tannin, 12 grains; ether, 2 drachms; spirits of wine, 5 ounces; spirit of lavender, 1 ounce; and glycerine, 1 ounce. Pincus has shown the amount of the daily loss of hair in the first or seborrhæic stage of this disease, the minimum daily loss being from 30 to 70, and the maximum loss from 62 to 200 hairs. Dandriff, as is well

known, consists in an excessive discharge of cells, abundant secretion from sebaceous glands, and fatty degeneration of sebaceous cells. In other cases Dr. Fraser's, of Dublin, lotion was sometimes useful, and which consists of aromatic vinegar, tincture of cantharides, rum, and water. This is sponged daily into the roots of the hair.

Scrofuloderma shows itself by tenacity, persistence, and gradual extension to new tissue; also by participation of lymphatic glands and subcutaneous tissue, ending in suppuration. There is an absence of itching and generally of pain. It is better, I think, to open early suppurating glands with a fine cataract knife, through a leech bite, and thus avoid a scar, which is due to subsequent puckering. If the gland has softened before it begins to adhere to the integument a long incision should be made, and the cheesy contents pressed out. This ought to be done before the skin is involved. The form of a scar due to a single incision without loss of substance depends upon the direction of the cut, more scar tissue being required when the wound is made in a perpendicular direction to the normal tension than when it is parallel.

Kerion occurred in a child six years of age, whom I saw in consultation with the late Dr. Patterson, of Belfast. The head was the seat of the complaint; the openings of the hair follicles were prominent, from which a peculiar secretion was poured out. The elevated swelling gave a boggy feel. The disease never suppurated. The glands in the neck were enlarged from irritation. Its parasitic nature was not easily recognized, owing, I believe, to the peculiar mucoid discharge acting the part of a parasiticide. The examples of *tinea tonsurans* and *tinea circinata* were, with two exceptions, all in children. One of the exceptional cases occurred in a gentleman aged twenty-eight, sent to me by Dr. Gray, of Castlewella. The beard was chiefly involved. I found a lotion of the hyposulphide of soda the most useful local application. He took arsenic and iron for several months, and to which I attribute the removal of the disease. In inveterate cases extraction of the hairs with Bazin's forceps is often required. A case of *eczema marginatum* or Burmese ringworm, supposed to be of parasitic origin, came for treatment; blistering was found of most use; subsequently Hebra's tincture of tar and black soap being used.

Ulcers.—One case was the warty ulcer of Marjolin, a disease so well described in the October number of this Journal by Dr. M'Dowell. The ulcer occurred in an old cicatrix. A paste of chloride of zinc destroyed the disease, but it subsequently returned.

The following is Dr. Pancoast's, of Philadelphia, formula:—Dried sulphate of zinc, one drachm; watery extract of opium, as much as will saturate one ounce of water; fine wheaten flour enough to make a paste; then add chloride of zinc, two drachms. This is spread over the diseased part, and left on for some hours.

Urticaria were nearly all mild examples of this disease, except one case of urticaria subcutanea, which proved rather obstinate. Colchicum and Indian hemp were the remedies mainly relied on.

Xanthelasma.—A rare disease; the patient was a female aged fifty-two, had small-pox twenty years previously. No sickness since, except occasional attacks of "biliousness." Never had jaundice. The disease exhibited itself on both eyelids. The pathology of this affection is obscure. The cutaneous manifestations are supposed to be due to oil and nucleated cells in the connective tissue. The liver is generally found diseased. I do not know how the case terminated.

In conclusion of this long paper, we are frequently asked by patients if they may use soap, as a rule, where the disease is acute. I think the use of any kind of soap to be injurious, and have little faith in so-called medicated soaps. However, it is sometimes necessary, for the purpose of cleanliness, to use soap, and one that will do no harm is to be recommended. For hospital patients I recommend Pear's transparent soap, and in private practice Rieger's "Savon D'Amandes Ameres sans Angles," which is one of the most harmless and most delightful soaps I know of.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Graft Theory of Disease ; being an Application of Mr. Darwin's Hypothesis of Pangenesis to the Explanation of the Phenomena of the Zymotic Diseases. By JAMES ROSS, M.D. Churchill. 1872.

THE similarity between the process which takes place in a substance undergoing fermentation or putrefaction, and that which occurs in a living body, the subject of one of the acute febrile diseases, is so striking, that it has been for a long time a matter of common observation, and the theories which from time to time have been devised to explain the one process, have generally been applied to the explanation of the other. Thus, when fermentation was supposed to be caused in a compound by mere contact with some other substance which was in a state of change, the disease was believed to be due to the contact with the body of some malaria or miasm, a substance existing in the gaseous form, not living, not organized, but organic in the chemical sense, and whose molecules, being in a condition of unstable equilibrium, by their contact with the fluids of the body, induced in them a decomposition to which the fever was due.

This contact theory of fermentation is now very generally abandoned in favour of the "germ theory," according to which fermentation is caused by the growth in the fermenting substance of independent living organisms. These, by their development and nutrition, produce chemical changes in the fermenting substance, just as every living thing alters the composition of the medium in which it lives. The germ theory is, in the cases of fermentation and putrefaction, supported by an immense mass of evidence. It also has been applied to the explanation of the zymotic diseases, although here the evidence is by no means so strong. It is true that many observers have satisfied themselves, by experiments on the blood of the sick, of the existence in it of foreign particles, and

they state that these supposed germs are really independent organisms, and capable, on a suitable soil, of developing into well-known vegetable forms. But such culture experiments are replete with difficulty and sources of error, and the evidence adduced in support of the theory fails to carry conviction to the minds of many. Among this number is the author of the work before us, for, while he believes that the contagion is particulate, organized, and living, he does not look on it as consisting of independent organisms, but only of detached portions of the body of a sick person capable of being grafted on to a healthy body, and of causing in it pathological changes similar to those which occurred in the body from whence it was itself derived. We give the author's statement of his theory in his own words:—

“The theory which I shall endeavour to elaborate in the following pages is, that contagium particles are living, in the sense of being portions detached from a living being; that they are not germs capable of giving origin either to higher forms of life or to organisms like themselves, in an organic infusion, but anatomical units modified and individualized by a diseased process, and capable of impressing upon the healthy organism, with which they come into collision, a succession of changes similar to that which preceded their own modification in the body from which they were detached.” (Page 29.)

After showing, from his own observations and those of others, that the body, both in health and disease, is continually throwing off epithelial cells and particles which float in the air, he goes on to “adduce evidence to show that the particles concerned in the production of contagious diseases are only alive as parts of a living body,” and as there is no experimental evidence to go upon, he tries to develop the indirect or analogical evidence. To meet the objection that particles so insignificant cannot initiate changes so extensive as those which occur in the zymotic diseases, he says—

“The events which succeed the union of the germ-cell and the sperm-cell, in ordinary reproduction, will strike everyone as more or less analogous to the case in hand, and a closer examination will disclose agreements between the two orders of facts where they might be least expected.” (Page 31.)

In considering this analogy we at once come on a difficulty. The detached particles which are supposed to be the agents of contagion, are badly nourished, and no longer fit to form a part of

the body, while the sperm and germ cells are supposed to be the most "highly vitalized" in the entire organism. On this point we find a great deal of interesting matter adduced, chiefly from the writings of Mr. Herbert Spencer, to show that the view so commonly held is erroneous, that the reproductive particles are really in a state of innutrition, and that in some animals sexual reproduction is possible only on condition that such innutrition of the reproductive cells exist.

It is next shown that the sperm cell and germ cell resemble each other in being both epithelial particles, but, that with this resemblance, in order that reproduction should occur, there must also be a certain difference, as is proved by the fact that many hermaphrodite animals and plants which can be readily fertilized by crossing, are self-impotent. The contagium particles also are epithelial, and they come into contact with the epithelium of the healthy body, and, through it, infect the system; but a particle detached from a healthy body does not differ enough from that with which it comes in contact in another healthy body to produce any effect in the latter. Here we would just say that we cannot understand what harm a particle from one healthy body could do to another if it induced in the latter merely the state of health of the former.

The next point of analogy brought forward is that both the contagium and the reproductive particles "are on the verge of reaching that state of molecular equilibrium which constitutes death;" "yet, like all lowly endowed tissues, they are able to retain their vitality for a long time." We shall return to these statements, merely saying at present, that we consider them absolutely unproved.

The author now considers a particular in which the analogy fails. "In the genesis of new individuals there is, if we except the *unicellular* organisms, where there is a fusion between two individuals, a union between two portions detached, or semi-detached, from two distinct individuals; but in the genesis of a contagious disease a union takes place between a distinct individual and a detached portion of another individual. But another series of facts is known to biologists, where the analogy even in this respect is complete. I allude to the phenomena of grafting, where a portion detached from one individual is grafted upon another, and I shall now proceed to show that some of the phenomena which result from this process closely resemble those of contagion" (p. 40). Then follow some most interesting details, showing the effect produced on the stock by the graft.

The author seeks to find a hypothesis which will explain all these processes, which he thinks graduate into one another, viz., zymotic diseases, grafting, budding asexual and sexual reproduction, the repair of injuries, the restoration of lost parts, and the growth, maintenance, and development of the individual. Such a hypothesis he thinks he finds in Mr. Darwin's theory of Pangenesis. This theory "implies that the whole organization, in the sense of every separate atom or unit, reproduces itself. Hence ovules and pollen grains, the fertilized seed or egg, as well as buds, include and consist of a multitude of germs thrown off from each separate atom of the organism." The theory involves the following assumptions:—

1. That during all stages of development the cells of the body throw off gemmules, which circulate freely throughout the system.

2. That the gemmules multiply by self-divisions, and subsequently become developed into cells by union with other gemmules, or partially developed cells, which precede them in the regular course of growth.

3. That the gemmules are transmitted from the parents to the offspring, are developed in the succeeding generation, but often are dormant during many generations.

4. That the gemmules in their dormant state have a mutual affinity for each other, leading to their aggregation either into buds or into sexual elements (p. 50).

The author then proceeds to simplify the theory of Pangenesis, and, as far as we can understand him, he simplifies it altogether away. The meaning of the theory is that every cell in the body is continually throwing off atoms, or gemmules, which are capable of reproducing the parent cells. These atoms accumulate in the ovule and sperm cell, and in the development of the new animal each gemmule in the ovum reproduces in the offspring the part corresponding to that in the parent from which the gemmule was detached. Dr. Ross thinks this theory unnecessarily complicated. He suggests that the ovum may be considered homogenous, and that the differentiation of parts in the growing animal or plant, may be due to the "action of the environment," which is different on different parts, and that the similarity between parent and offspring may be explained by the similarity of the action of the environment during the development and growth of both. He says (p. 56), "If, therefore, a fertilized germ is surrounded by

conditions nearly similar to those by which its parent was surrounded at the initial stage of its development, all that is necessary to account for at first is, how the first term gives origin to a second similar to that of the parent, and the conditions in the environment continuing similar, how the second gives origin to a third, and so on. It has already been traced how a gemmule may by growth give rise to a differentiated cell, and how a cell may give rise to an organism consisting of an aggregate of cells differentiated into three tissues, differing from each other, and it has also been hinted that an indefinite number of terms of higher and higher degrees of complexity might be accounted for by the same principles; therefore, it appears to me that it is unnecessary to assume that the fertilized germ consists of such a complex aggregation of gemmules as Mr. Darwin supposes."

This appears to us very like giving up the theory altogether.

"But if I object to some of the assumptions of the theory of Pangenesis, it may be asked which of them I would retain. What appears to me to be the most valuable assumption of the hypothesis is that the cells of the body cast off gemmules, which subsequently become developed into cells by union with other gemmules, or partially developed cells, which precede them in the regular course of growth." (Page 59.)

The theory of the author, if we understand him rightly, is simply this—every cell in the body throws off atoms, or gemmules, which may develop into cells similar to the parent cell; one cell cannot go on indefinitely thus multiplying by budding, but there must be an occasional concourse of two cells, or of portions of two cells, and the cell arising from this concourse will resemble, more or less, according to circumstances, one or other of its parent cells. In this way diseased cells can, by their diseased gemmules, propagate diseased tissue on the same, or another individual, while again, healthy cells, if their gemmules are more potent, can check or diminish disease by infecting with their healthy gemmules the diseased germs of the neighbouring unhealthy cells.

We shall now endeavour to show how this theory is applied to the explanation of the phenomena of disease, and as the small-pox group, consisting of vaccinia and variola, is that to which most space is allotted, we shall choose it for illustration of the author's views.

The phenomena observed after vaccination are the production of a vesicle, the formation of an inflammatory areola around this,

swelling of the nearest lymphatic glands, fever, sometimes a general eruption, and subsequent insusceptibility to another attack of vaccinia, or to one of small-pox.

The vesicle differs from one produced by ordinary inflammation, and Dr. Ross confesses himself unable to explain the cause of this difference, but he thinks it analogous to the differences in the kinds of galls produced by very similar insects on the same tree. He goes on to say (p. 109), "it is very evident that the vesicles, the areola, the swelling of the glands, and the fever are bound together by some casual (causal?) connexion; and, indeed, there can be little doubt that the vaccine vesicle is either directly or indirectly the cause of the areola and of the glandular enlargement. But the areola and glandular irritation are only other instances of facts which have met us already; the areola is an instance of the propagation of disease by local contact, and the glandular irritation an instance of propagation of disease by contact with the products of disease in the circulation. According to the theory of Pangenesis, the cells of the vaccine vesicle at the different stages of its progress cast off gemmules, which, in the first place, affect the cells with which they are in contact, the cells becoming less and less affected as the circumference affected widens. But some of those gemmules are absorbed by the lymphatics, and these come in contact with the cells of the nearest glands. The cells are fertilized by union with the gemmules, become more active, a greater flow of blood takes place to administer to their demands, and engorgement of these glands results. As already remarked, the vesicle, the areola, and the irritation of the glands are only facts with which we were familiar when discussing common inflammation; and now we find them presenting themselves under new circumstances. But it has just been noticed that the vaccine vesicle presents certain special characteristics; and some of these characteristics are communicated to the tissues surrounding the vesicle and to the lymphatic glands."

That at an early period the gemmules have gone beyond the lymphatics, and have infected every part of the surface of the body is shown by the action of "Bryce's test." When four or five days after a successful vaccination a second vaccination is attempted, the second vesicle goes through its stages very rapidly, and never attains to a large size. The rapidity is supposed by the author to be due to the fact that the cells of the part secondarily vaccinated have already by the first vaccination undergone a change of the

same kind as that produced by the insertion of the virus, and the smaller size and less intense inflammation of the second vesicle are explained by the lesser difference between the molecular motions of the vaccine particles and of those of the cells of the tissues than existed in the case of the first vaccination, and are considered analogous to the instances in which plants, although not absolutely infertile with their own pollen, produce with it only stunted and weakly seedlings.

The secondary general eruption which sometimes follows vaccination is supposed by the author to consist of abortive vaccine vesicles, a view which he thinks is borne out by its occurrence on the eleventh day, or that on which the eruption appears in inoculated small-pox, and by the graduation from roseola to pustules being seen in small-pox, as well as in vaccinia. This graduation further suggests that, even in those cases where no general eruption has occurred, "the whole tract of tissue which is liable to the eruption of small-pox has been profoundly modified;" and small-pox and cow-pox being considered as essentially the same disease, the immunity afforded against the former by the latter is merely a case of the protection afforded by one attack against a second of the same contagious disease.

The gemmules which infect the skin cannot be the same as those thrown off by the primary vesicle, for these have already produced their effect on the fifth day, as is proved by Bryce's test. But by these the lymphatic glands have been infected, and the glands in their turn throw off gemmules, which, coming as they do from adenoid tissue, may be supposed to have a peculiar affinity for other adenoid tissue, such as is said to exist in the skin, and is believed by Dr. Ross to be the part of the integument affected by the eruption.

We must leave our readers to judge of the value of this hypothesis, merely saying that the existence of adenoid tissue in the skin is, to our mind, more than doubtful. There is no mention of it in any of the recent works on histology, and we have never met with it ourselves in numerous microscopic examinations which we have made of healthy and diseased skin.

After some observations on the identity of cow-pox and small-pox, the author proceeds to the consideration of the latter disease. There is little to be said of the inoculated variety, which has not been implied in what has been already said of vaccinia. In the natural small-pox Dr. Ross thinks it most probable that some local lesion

is produced in the mucous membrane of the respiratory or digestive tract, through which the poison is absorbed, and that in this way the natural is assimilated to the inoculated variety. To explain the longer period which elapses between exposure to contagion and the appearance of the eruption in the natural than in the inoculated small-pox, the author proposes the following theory. In natural small-pox the contagium is swallowed with the saliva, and impregnates the mucous membrane of the digestive tract; this, after five days, throws off gemmules which infect the mesenteric glands; these, after five days more, infect the liver, which, after five days more, infects the adenoid tissue of the skin. Thus the necessary time is provided for, and the greater severity than in the inoculated variety is explained by three sets of tissues being affected instead of only two, and, hence, a greater production of gemmules being provided for.

It will be perceived that the author, when in a difficulty, thinks "a guess, however imaginary, is better than no attempt at all being made at interpretation." Our limits will not allow of our following the author further. He has a chapter on the general diseases, or those caused by general changes in the incident forces of the environment; one on the other zymotic diseases than those of the small-pox group; and chapters on the constitutional diseases, of which he takes cancer as the example of inherited local disease, and tubercle as that of inherited diathetic disease, and the book ends with a chapter on classification.

We confess to having had some little difficulty in reviewing this book. The style is very diffuse, and it is often hard to follow the author's meaning through the cloud of words and the long digressions by which it is obscured. We have, for this reason, as far as possible, quoted the writer's own words, and we believe we have given the substance of his theory fairly.

As to the value of this theory, each one must decide for himself. For our own part we are inclined not to place it very high. We have so few facts yet established as to the nature of contagion, that we think it premature to put forward elaborate theories on the subject, and we think such a work as this, in which the author brings forward not a single new fact, and where he in many cases exceeds what may fairly be considered the legitimate use of the scientific imagination, will not do much to advance our knowledge. Even the facts discovered by others, on which Dr. Ross builds his theories, are not always correctly stated. As an example we may

refer to p. 55, where allusion is made to Cohnheim's experiments on suppuration.

There is one circumstance which has always struck us as being fatal to the theory which supposes contagium to be made up of particles of living protoplasm detached from the sick body; that is, the tenacity with which the contagium retains its potency. We have a great deal of positive knowledge of the extreme difficulty of keeping protoplasm alive when detached from the living body. Every microscopist knows the minute precautions necessary to be taken in order to keep a pus corpuscle alive for even a few hours on the stage of the microscope, and what very slight alterations of the chemical or physical constitution of the environment are sufficient to kill it for ever. Now, if the potency of contagium depends on its being living, we think it most unlikely, in the present state of our knowledge, that it could preserve this potency for months or years, and bear to be dried on clothes or furniture, or to be blown about through the air. We know that some of the very lowest animals will survive dessication, but the particles of protoplasm forming the bodies of the higher animals have not the same power of independent vitality which is enjoyed by that forming the bodies of the infusoria, and will not bear the same rough treatment any more than a man will bear being cut up into pieces as a hydra does; and, although the male element may be able to live for four or five years in the sperma theca of a female insect, it does not follow that it would live for as many hours if dried on a glass slide, and it is quite certain that the spermatozoa of a man would not survive dessication for five minutes. To our own mind the vegetable germ theory of contagion presents more probability than any other yet proposed; but, as we have said, it is quite premature to commit oneself to a theory. What we want are facts well observed, and there are few branches of scientific investigation which present greater difficulties than the collection of these facts.

On Cerebria and other Diseases of the Brain. By CHARLES ELAM, M.D., &c. London: J. and A. Churchill. 1872. 8vo. Pp. 142.

By the somewhat inelegant name of cerebria Dr. Elam proposes to designate an acute, idiopathic, diffused inflammation of the entire substance of the brain, uncomplicated with meningitis. He believes

that our classification of brain diseases is imperfect, inasmuch as acute inflammation involving the entire substance of the organ is not described as existing independently of and unconnected with inflammation of the brain membranes. In the following passage the author supports his view of the subject by analogies drawn from disease in other organs:—

“It may fairly be considered that so serious a hiatus is not to be found in the diseases of any other important organ. If we take the lungs as an illustration, we find that pneumonia, or inflammation of the substance of lungs, is described as a special and independent affection, existing either in connexion with, or totally apart from, inflammations of the pleura. And, conversely, these last inflammations are by no means considered necessarily to involve pneumonia proper. Again, carditis, pericarditis, and endocarditis, are not only separate diseases, but have their special etiology and symptomatology. Not to accumulate illustrations unnecessarily, I may say, that in scarcely any instance, except that of the brain, has inflammation of the substance of an organ been considered inseparable from, and invariably described along with, inflammation of its membranous coverings.”

We do not think Dr. Elam could have selected a more unfortunate illustration, as far as his theory is concerned, than that afforded by the lung. It is well known that acute inflammation affecting the lung-substance is uniformly accompanied by a kindred affection of the pleura. The occurrence of a plastic exudation on the pleural surface corresponding to the portion of lung engaged in inflammation is a fact familiar to every pathologist, and it has not occurred to us to meet with any case of pneumonia in which, on *post-mortem* examination, unquestionable evidence of the participation of the pleura in the inflammatory process was not observable.

With regard to carditis, as possessing a special etiology and symptomatology independently of pericarditis and endocarditis, we must say that no facts hitherto observed seem to us to warrant this statement.

When we come to the direct evidence adduced by Dr. Elam in support of his opinions, we are at once struck by its meagre amount. The histories of three cases are given, in which *post-mortem* examinations were made, and outlines of two cases are recorded, in which recovery took place, and which are looked on by the author as being possibly cases of cerebria. Other similar cases are said to have been met with by him, and from these facts

a clinical history of the disease is drawn up. Dr. Elam considering himself justified in stating, for example, that the disease certainly occurs with much greater frequency between 10 and 30 than at any other ages. Dr. Elam has been an attentive student of Bacon, from whom he occasionally quotes, and certainly ought to have learned from this great master the danger of hasty generalization from so limited data.

Coming now to the symptoms of cerebria, as observed by Dr. Elam, we find them to consist in a general oppression of the faculties; slowness of perception; pain not complained of; slight delirium; the pupil about half dilated, contracting slowly on the approach of light, and then slowly dilating although the light is not removed; no convulsions or paralysis; pulse not materially affected until near death; tongue as first smeared and whitish, and ultimately becoming brown and furred.

The disease is generally, although, according to the author, not invariably fatal.

The *post-mortem* appearances on which the statement of the inflammatory character of the affection is based are, an increased number of bloody points observed on the cut surfaces of the brain; a slight general rosy tint observed in the white substance, with an increased darkness of the grey matter; the consistence of the brain being in one instance harder, in one much softer than natural, and in the remaining one of the three cases recorded apparently unchanged.

The diagnosis of cerebria may be made from encephalitis and from typhus, according to the author, by attending to the following circumstances:—

“From encephalitis it is at once distinguished by the absence of symptoms of excitement and of headache. There are none of those symptoms which are generally described as characteristic of the predominance of meningeal complication; there is not the increased heat nor rapidity of pulse, nor sensory irritability. But the pain in the head is the most certain diagnostic mark. In encephalitis there is always, in the outset at least, great and deep-seated pain. In all the cases of cerebria that I have seen, where the patient could give a clear account of the symptoms, there has been a slight headache accompanying the first vomiting, but it has passed off—at least so the patients have *said*, so long as they could answer coherently. My opinion is that the pain is there, but that the sensibility or consciousness of it, or power of translating it into words, is benumbed or lessened. There is often an expression of face, a frown,

or other outward sign, that suggests the existence of pain when the patient utterly denies feeling any."

We have now given pretty fully and fairly the gist of the author's observations on this subject, and while his statements are undoubtedly deserving of consideration, it will, we think, be apparent that he has altogether failed to establish satisfactorily his position. It is not in this way that permanent additions are made to our knowledge of diseased processes. Pathological observations are now the result of much more prolonged labour and conducted with a far greater wealth of scientific appliance and method than Dr. Elam seems to think necessary. Indeed he appears to regard pathological histology as rather unworthy of the physician, as he says—

"I believe the time is not far distant when the living phenomena of disease will be deemed of more importance than the ruins of the structure in which it was manifested."

We would venture to suggest to Dr. Elam that it is to unwearied pathological investigation that we owe nearly everything which has been gained in recent times in the way of accurate knowledge of disease of the nervous centres, and, regarding cerebria, we would point out to him that, in our judgment, he by no means makes out anything approaching to a demonstration of his position. In the first place the evidence that the cases adduced were at all inflammatory in their nature is altogether unconvincing and incomplete; in the second place, the similarity of the symptoms observed in the different cases is not at all sufficient to establish a pathological identity between them, and, finally, the clinical history is not recorded with anything approaching to the fulness of detail or precision of observation which would be necessary to establish even a much less important conclusion. There are in Dr. Elam's work several other chapters treating of various points regarding cerebral disease, but there is nothing of much novelty or importance advanced. A very sensible and clear account is given of the possible variations in the cerebral circulation which will be found to well repay perusal.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

MEDICAL SOCIETY OF THE COLLEGE OF PHYSICIANS.

Wednesday, November 20th, 1872.

HENRY EAMES, M.D., Honorary Secretary.

DR. HUDSON, President.

THE minutes of the last meeting having been signed, the President said :—

GENTLEMEN,—Having been placed by your courtesy in the honourable position of President of this Association, it becomes my pleasing duty, on the commencement of the present Session, to take a very brief review of the past, and to offer a few remarks on some of our proceedings, as well as my congratulations on the evidence these afford of the vitality of the Association and of the energy and ability displayed by individual members.

With the exception of highly interesting practical papers, by Dr. Eames, on the Administration of Phosphorus in Certain Diseases of the Skin, and by Dr. Finny, on the Antagonism between Morphia and Atropia, the proceedings of the Association may be said to have been almost exclusively devoted to the consideration of two diseases then prevalent in Dublin, small-pox and fever, and of the best preventive measures. Two papers of very great interest having been read, on the treatment of the former, by Dr. Stokes and Dr. Foot; while the statistics and hygienic conditions of the disease were treated of in a masterly manner by Dr. Burke and Dr. Lyons. Dr. Grimshaw contributed a paper of great value, on the Sanitary Condition of Dublin with reference to Fever; and Dr. Cameron and Mr. Tichburne closed the proceedings of the Session with contributions on the Best Means of Destroying Contagion.

I venture to offer a few remarks on the results of the discussions on the important subjects of the prevention of small-pox and fever.

And, in the first place, I think the important facts brought forward at our meetings, supplemented and confirmed as they have been by the researches of Dr. Cameron, in his Report on Public Health in the 6th number of the *Dublin Medical Journal*, fully prove the prophylactic power, to a limited extent, of primary vaccination, and its power of modifying subsequent attacks of variola. With regard to the latter, I find that while the average mortality of unvaccinated and doubtful cases treated in

the North and South Union Small-pox Hospitals, the Hardwicke, Cork-street, Sir Patrick Dun's and the Mater Misericordiæ Hospitals, amounted to 67·83 per cent., that of vaccinated patients was only 11 per cent. Equally conclusive statistics adduced by Dr. Cameron from England and the Continent as well as from America, fully justify his conclusion that "while it is idle to assert that persons thoroughly vaccinated enjoy perfect immunity from small-pox, it may be fairly claimed for vaccination that it greatly lessens the 'receptivity,' which appears to be a factor in contracting the disease."

Dr. Cameron refers to a fact mentioned in the report of Liverpool which is worthy the notice of vaccinators. It appears that while amongst the cases where the vaccination was doubtful, the mortality was 56·4 per cent.; where the patients had one visible cicatrix it was but 14·9 per cent., where two cicatrices were visible 9·8 per cent., and where three only 7 per cent.

If the statistics of the recent epidemic are conclusive on the protective power of primary vaccination, they are not less so on that of re-vaccination, regarding which some doubts appear to have been previously entertained by several members of the profession. Both the experience of our hospitals and that of individual practitioners attest this fact. It appears that in all the hospitals only six fatal cases occurred after re-vaccination; while in the Hardwicke, of 611 cases admitted, but 3 had been re-vaccinated; and in Cork-street, among 425 cases no case was admitted after re-vaccination. Add to these the facts mentioned by Dr. Kidd in the discussion on Dr. Burke's paper, and the results of re-vaccination of students and others in the Hardwicke and Steevens' Hospitals; and we have a body of evidence which should convince the most sceptical of the necessity for, and advantage of re-vaccination.

With regard to the objection sometimes urged, that re-vaccination has occasionally been followed by serious and even fatal consequences. It appears that much importance should be attached not only to the state of health of the subject of the operation, but also to the mode of performing it; that such vaccinations as those described by Dr. Darby, from a vesicle at an advanced stage and already become opaque, should be avoided, and that the precaution urged by Dr. Halton, in his report of 500 cases of re-vaccination,^a should be carefully observed, namely, to use only the lymph which flows from the summit of the vesicle; thus avoiding the danger arising from the admixture of blood or pus which might follow from pressing out the contents of its base.

Considerable diversity of opinion seemed to exist in regard to the origin and diffusion of the disease, one speaker questioning the paramount influence of contagion, another hinting a doubt of the existence of epidemic

^a Dublin Journal of Medical Science, March, 1872.

influence. Whether the late visitation was an epidemic in the strict sense of the term, the product of an aerial poison, of a true pandemic wave, like the relapsing fever or epidemic influenza; or whether (as I believe), the “*materies morbi*” was introduced in the person or clothing of a patient, and so spread from individual to individual, the rapidity and extent of diffusion being due to the great proclivity, or receptivity of the community, caused by other influences operating at the time, and rendering a large number of individuals pre-disposed to the action of the poison, is a question which different minds will entertain with different conclusions upon it.

One thing, however, is certain, that the exclusive contagionist can as little explain the occurrences of the recent outbreak of this disease as he who questions the existence of such an agency. There are few affections in which intrinsic and extrinsic causes are not combined, and in no subject is the dictum of Stuart Mill more truly applicable than in etiology; that “the cause, philosophically speaking, is the sum total of the conditions, positive and negative, taken together, the whole of the contingencies of every description, which being realized the consequent invariably follows.”^a

It is only by the careful study of co-existing and co-operating influences we shall ever comprehend the conditions which regulate the spread of small-pox or typhus, or ever arrive at the solution of such questions as why one epidemic of scarlatina may be universally benign and another as universally malignant? or why erysipelas is not a source of danger in our surgical wards at one period, while at another the most trifling operation and the slightest accident are commonly followed by fatal results?

The high rate of mortality in Dublin seems to have been due in some measure to the co-existence of another epidemic influence, that of purpuric fever, or cerebro-spinal arachnitis. Drs. M'Dowel, Lyons, and Hayden concur in their recognition of this epiphenomenon in twenty fatal cases in the Hardwicke and thirty-eight cases in the Mater Misericordiæ Hospitals. The conclusion seems justified by the close similarity of symptoms to those observed in the epidemic of a few years since, and by the undoubted co-existence of a mild form of cerebro-spinal arachnitis, during the past year, both as an independent affection and as a complication of typhoid fever. It is also in accordance with the observations of some of the great physicians of past times, as was well remarked by Dr. Henry Kennedy.

It cannot be said that any practical conclusions with regard to sanitary or precautionary measures have followed from the discussions on variola of the past session. Interesting as they have been, the

^a Logic, Vol. i., p. 370.

proceedings of the association have stopped short of any such result. It is, however, highly desirable that the profession should arrive at some general agreement as to the best prophylactic measures, and the means of enforcing them; and should urge their adoption upon the Government and the Legislature. Of such measures compulsory vaccination and re-vaccination at once suggest themselves, and there is abundant proof of the necessity for enforcing not only the performance, but the proper performance of both. This would probably render necessary the appointment of inspectors of vaccination, at least in large towns, as well as an adequate supply of lymph, such as cannot be obtained from our vaccine institution in the present state of its funds, so miserably disproportioned to the population as compared with England. On this subject I need add nothing to the forcible statements of Professor Haughton at the recent meeting of the British Medical Association.

With regard to measures directed to the prevention of the spread of the disease among the community, all such to be efficient must recognize the existence of two factors of disease, the *materies morbi* “contagion,” whether imported or arising amongst us, and that varying condition which we call receptivity, by which individuals or communities become at different times more or less susceptible of the influence of the contagion. The existence of the first has from time to time been questioned, and the facts adduced in proof of it have been met by arguments, which as Gooch^a acutely remarked, are all founded on the sophism that the contagious or non-contagious nature of a disease is made a question of inference, to be determined by reasoning, when, in truth, it is a question of fact to be determined by experience. The difficulty of preventing the importation of disease is no doubt great, and is daily increasing with the increase of inter-communication; but this is no proof of the non-existence of the evil, or that it is not our duty to use all practicable means of counteracting it. Upon this subject the observations of the writer I have just quoted are worthy of our serious consideration.

“There are occasions,” says Gooch, “when it is necessary to act on the supposition that a disease is contagious, though the evidence for the opinion is far short of proof. The question is sometimes so difficult—life and health are so precious—and the precautions necessary to prevent the communication of disease, if it should be contagious, comparatively such trifling evils, that a prudent physician will take care to be on the safe side, and act as if he were certain it was contagious, although to an indifferent person weighing the evidence in the scales of mere speculation, it would appear only a bare possibility. And here is the difference between a science the subjects of which are inanimate things, and a science the subjects of which are flesh and blood, and health and life

that whereas in the former the onus probandi lies on him who affirms the proposition, because the disbelief leads to no injurious consequence, in the latter the onus probandi lies on him who denies it because the disbelief would occasion the neglect of measures which are harmless even if they be unnecessary, but the neglect of which may be fatal if they be essential."

Precisely such a course as is here indicated by Gooch was pursued in Ireland with reference to the cattle plague in 1866. While pedants were arguing in England that it was not and could not be imported, that contagion was an exploded theory, a bugbear, and so on; and the only effectual measures of prevention were consequently neglected until too late; a few Irishmen possessed of common sense, resolutely insisted upon the adoption by the Government of these measures, and so effectually prevented the introduction of the pest into Ireland. But, as Dr. Burke well remarked—"the plague in cattle excited intense alarm in the public mind; the plague in man has been looked upon with indifference." It is a serious question for our consideration how far this indifference is fostered and encouraged by the discordance of opinion in the profession: how far the apathy and false security of the citizens and the authorities may be due to the sciolism and scepticism of their professional advisers. Be this as it may, I maintain it is our plain duty, both individually and in our corporate capacity, to warn the public of all dangers to the health of the community arising from preventible causes, and to urge upon them the measures most effectual for prevention, "whether they will hear or whether they will forbear."

That the isolation of the patient, and the destruction or disinfection by heat of all possible fomites are the true and sufficient preventives of the diffusion of a contagious disease I firmly believe; as I do that with regard to small-pox, cholera, typhus, and the plague, these measures have proved effectual in numerous instances as well attested as any fact could possibly be.

And this leads me to remark that a careful review of the proceedings of the past session justifies two conclusions—first, that a great amount of attention needs to be paid to the study of etiology or the investigation of the causes, extrinsic and intrinsic, of disease; and, second, that this subject so far as regards preventible causes is beginning to excite the interest of the members of the profession in Dublin which it deserves.

No doubt the circumstances of the time had especial influence in causing the meetings of the association to be devoted to such an extent to questions of preventive medicine, but there are not wanting other proofs of the interest in this study lately aroused; an interest that may be said to date from the meeting of the British Medical Association in Dublin, at which Dr. Rumsey delivered his admirable address on state medicine; followed

as this has been by the institution of a diploma in state medicine in our enlightened university, and by the organization of a Sanitary Association in this city, in which many medical men have taken an active part.

The duties of the profession in regard to the public health have been ably set forth in the comprehensive addresses delivered amongst us by Dr. Rumsey and Dr. Stokes, and we may hope that the labours of the Sanitary Association will ere long bear fruit in the abatement of disease and mortality in this city. In this good work the members of our profession will give, as they ever have given, their ready and disinterested co-operation, "warring," to use the words of Dr. Rumsey, "against ignorance, apathy, and sordid opposition, and winning many a victory over filth, negligence, and selfishness." And none surely can suggest remedial measures so well as those who know the nature and influence of the evil; none can so well point out the mode of preventing disease as those who have studied the operation of its predisposing and exciting causes; of those malign influences which have their origin either within the individual or from amongst his surroundings.

But important as this duty is, and important as the study of etiology is with reference to the prevention of disease, this is by no means the limit of its relations to medical police, and to scientific and practical medicine—to pathology and therapeutics. Many of the exciting causes as well as many of those which create and influence our receptivity of disease are not preventible, but continue in operation during the entire course of the disease, constituting, so to speak, an integral part of its natural history and pathology, and therefore demanding our careful study, with a view to antagonize or modify their action upon the organism. Moreover, the comprehensive study of all the conditions which regulate the origin, course, and tendency of disease, aids us in the acquisition of a knowledge of the special proclivities of different classes of the community; of occupation, age, and sex; and not only of the individual but of his several organs and tissues to different forms of disease at different periods of life; as well as of the affinities of the several morbid poisons for each special organ or tissue.

Taking a retrospect of the past history of each patient, it finds in the vestiges of former disease the germs of the present and the future, or the source of a special proclivity in some organ to be affected by extrinsic causes; without which, some pathologists go the length of denying that such causes ever give rise to acute disease, as Dr. Wilks, who maintains that with the exception of thoracic inflammations, acute inflammations invariably supervene upon chronic ailments, and that "to suppose a healthy person can suddenly have an attack of acute arachnitis or acute peritonitis may perhaps involve an actual pathological absurdity."

Obviously these and similar questions in the genesis of disease have an

important bearing on various subjects of medical police—as on the assurance of lives—and on the public health generally; while as regards curative medicine, the study of causes not only embraces those in operation at the beginning of disease, suggesting such problems as the existence and laws of pandemic waves, the explanation of the simultaneous outbreaks of influenza, or relapsing fever at such distant places as England and South Africa, London, Galway, and East Prussia; the action of epidemic influence as a predisponent to the reception of contagion or miasm, and conversely the proclivity to epidemic disease acquired by residence in an infectious locality; (involving the question raised by Dr. Stokes in the course of the discussion on Dr. Grimshaw's paper, whether civic miasm is ever a *causa verá* of fever or anything more than a predisponent, acting by its depressing influence on the general health;) the explanation of those occult changes in the organism which render individuals susceptible to influences which they have long resisted and, *per contra*, those which confer immunity from disease; but it, moreover, enables us to distinguish between the essential phenomena of the disease and the epiphenomena produced by some extraneous influence, as in the cerebro-spinal complication of small-pox already referred to, or in the complications, by no means infrequent, of cerebro-spinal arachnitis, and of diphtheria in typhus and typhoid fevers. In all such cases, failing to see a causal relation between the poison of small-pox or fever and the epiphenomena referred to, we are led to ascribe them to their true cause, the epidemic influence prevailing at the period.

It is to be observed that all advances in the knowledge of causes have been attended with corresponding advances in the accurate and scientific classification of fevers. When the British Medical Association offered the first Hasting's prize for an essay on the sources of the poison of fever, the most confused ideas prevailed on both causation and classification. One party maintaining that contagion, continued through a series of individuals from remote antiquity, was the *one* source of the *one* fever poison; another party holding that the poison generated in the paludal sources of the tropics, and by the crowding together of human beings in ill-ventilated rooms in London, was the same, and the fevers produced identical. Now, thanks to the labours of the profession in sanitary science, conjoined with the clinical and pathological investigations of Drs. John Reid and Henderson, Sir W. Jenner, Dr. Murchison, Dr. A. P. Stewart, and others, no such confusion of causes or of types prevails; comparatively clear and defined ideas are entertained on the subject, and the profession generally recognize in typhoid or enteric fever an endemic disease, the result of fœcal miasm, inhaled, or received into the system by drinking water contaminated by sewage matters, the disease of a locality, and comparatively seldom carried beyond it by the affected individuals, the

cause being completely and entirely under control, and removable by the removal of the filth, and the purification of the drinking water; while in typhus they see a contagious animal poison, occurring under the combined influences of deficient ventilation, overcrowding, poverty, and mental and bodily depression; capable of being augmented, and aggravated in intensity, until it becomes a pestilence, spreading from its original habitat among the community, by deportation in the persons and clothing of the infected.

Occasionally, as might be anticipated, we find the sources of both poisons co-existing in a locality—foecal miasm or impure water, with ochlesia or imported contagion—and this circumstance, by producing what has been termed mixed types of fever, has led to difference of opinion as to etiology and classification. For example, two members of a family are sent to hospital, one presenting the phenomena of enteric fever, the other of well-marked typhus; or it may be that a patient affected with typhus presents also the characteristic phenomena of enteric fever; and from these occasional and highly exceptional occurrences, some few will argue that one fever poison only, and one species of fever, really exist, and that the distinction between typhus and typhoid is imaginary and unfounded. But surely the explanation of the apparent anomaly is easy and consistent with facts. Of different members of a family exposed to the sources of two poisons, one may be predisposed to be influenced by the one, and another by the other poison; nor is there anything inconsistent with the natural history of morbid poisons, or with our experience, in the co-existence of contagious typhus with enteric fever in the same individual. We meet with its analogue in the hybrid of measles and scarlatina, and yet no one doubts the separate individuality of these poisons, or imagines that because both may at times co-exist, therefore, exposure to either will communicate the other.

It is scarcely necessary to observe that the occurrence of these cases of mixed type suggests an important sanitary lesson, and that the true mode of prevention comprises not only the removal by cleansing and ventilation of one source of fever poison, but also the relief of that destitution which, by depressing and debilitating both mind and body, becomes the most powerful agency in the propagation and diffusion of disease. Poverty, with the consequent privation of food, clothing, and fuel, has ever been the precursor, though not the proximate cause, of outbreaks of fever.

But the influence of the study of causation does not end with the beginnings of diseases, or with their classification and nosology. On the contrary, were I at liberty to follow up the subject in detail, I could show how intimately it is associated with pathology, of which, indeed, the study of causation constitutes an integral and important portion, and what an important bearing it has upon therapeutics.

In regard to the former, it acts both analytically and synthetically; “in the separation of diseases previously compounded as one,” to use the words of Sir W. Jenner, and not less in the construction of groups of diseases having a similar origin, and presenting similar indications of treatment.

Take as an example of the former a case of enlarged spleen. Is it the effect of malarial poison, or of leukœmia, or of cirrhosis of the liver?

Upon the determining of the nature of the cause depends the treatment to be pursued in each case.

But there is also reason to believe that, by the study of causes, when associated with pathology, we are progressively constructing groups of correlated diseases, and by cautious generalization are laying the foundation for gradually increasing uniformity and simplicity of therapeutics.

It may reasonably be doubted if we shall ever arrive at a knowledge of all the causes, extrinsic and intrinsic, of disease, or be able to comprehend their diverse modes of action upon the organism, and thus to trace each link in “the electric chain with which we are darkly bound,” still less to reduce all to uniformity of action, or to refer all to a common origin, any more than we can hope to discover an universal panacea or specific remedy; but a review of the recent progress of medicine appears to show that we are gradually grouping cognate diseases—cognate in the sense of their causal relations; that this process keeps pace with advances in the knowledge of the natural history of disease; and, moreover, that while the number of specific remedies diminishes, the number of diseases to which a given remedy is considered specially adapted is gradually increasing; in some instances to the exclusion of numerous medicaments heretofore in vogue.

Bromide of potassium furnishes a striking example of this, as it may be said to have displaced some twenty or thirty remedies in epilepsy alone, while its use is gradually extending to the numerous cognate affections which either have their origin in, or are associated with, morbid conditions of the excito motor centres of the nervous system. I need scarcely refer you to the very similar example of mercury in its relation to the various pathological conditions in constitutional syphilis, or remind you how affections apparently so diverse in their symptomatology as the closely simulated phthisis, the laryngitis, the nodulated liver, and the paraplegia of syphilis, form a group owning one cause and yielding to one remedy.

We have a still more familiar example in the allied affections arising from malaria and the preventive and curative action of quinine and arsenic.

Another is afforded in the affinity which links together erysipelas, puerperal fever, scarlatina, and diphtheria, and in the adaptation to all of one remedy—perchloride of iron.

Of this tendency to generalization in therapeutics I shall refer but to two more examples—ergot of rye and opium.

According to Pereira the influence of ergot on the gravid uterus has been known for near 200 years. It is little more than thirty years since the experiments of a French physiologist showed that this influence extended to the other pelvic viscera; and in the first volume of the *Dublin Quarterly Journal*^a (in 1844) I mentioned the results of some trials of it in loss of power of the detrusor muscles and sphincters of the bladder and rectum. I need not say that my own subsequent experience and that of many others has confirmed these results, nor need I remind you how the observation that its effects were produced upon unstriated muscular fibre led on the one hand to generalizing the remedy, and on the other to the recognition of a common character in the affections in which it is found useful, its ultimate action being referred—whether in the cases of menorrhagia from sub-involution of the uterus, or hæmoptysis or other form of hæmorrhage, or paraplegia from congestion of the vessels of the cord, or mania or weak dilated heart—to that system of vaso-motor nerves whose discovery Dr. Wilks classes among those contributions of science to medicine of which he derisively says, “We grasp it, we hug it, we cannot make enough of it, until in the end we all become ridiculous.”

The only other illustration with which I shall trouble you is that of opium, a valuable remedy in many apparently dissimilar conditions, and more especially in a group of remarkable cases requiring the application of the great principle of physiological rest.

Known and valued for ages for its power of assuaging pain and procuring sleep, its influence on the function of nutrition is of comparatively recent discovery—affections apparently so diverse as phagedena and melancholia, Pott’s gangrene, gastric ulcer, ulcer of the leg, and atrophy of the brain having been benefited by it in turn.

On the other hand, since the remarkable observations^b of Drs. Graves and Stokes on the treatment of peritonitis from perforation of the intestine by opium, its employment has increased “*pari passu*” with our knowledge of that numerous class of cases in which the prominent indication of treatment is the physiological rest of the affected organ. Since Drs. Graves and Stokes recognized this principle in their treatment of the above-mentioned lesion, countless lives have been saved by its application by physicians and surgeons to cases of disease, operation, and accidental injury—the great instrument in all such cases being opium.

It is not my purpose to dwell on the intimate pathological relations of the groups to which I have referred, or to attempt to solve the problem

^a Review of Copland’s Dictionary, Part 10.

^b Dublin Hospital Reports, Vol. v.

in what cases they arise from a common cause, or when the bond is similarity of action merely; nor to the *modus operandi* of the several remedies. These are problems of much interest, and their investigation will repay the labours of the scientific members of our profession, which are now so largely devoted to their elucidation.^a Moreover, such labours will eventually furnish the answer to the question, “Is a system of scientific therapeutics possible?”

We cannot deem it impossible, but obviously its attainment must be slow and progressive, and must in all cases depend upon the determining of two data upon which it must rest—the *ratio medendi* or indications of treatment, and the *modus operandi* of the remedy; data which include a comprehensive knowledge of diseased action on the one hand and of the physiological and therapeutic action of medicine on the other.

The present state of therapeutics and its relations to the science of medicine has, within the last few years, engaged the attention and elicited the opinions of numerous able members of the profession, amongst others of Anstie, Chambers, Johnson, Rogers, Ross, and Wilks in England, and of Dr. Walter Smith, the late Dr. Hewit, and Dr. Henry Kennedy among ourselves.^b

A few very brief extracts will serve to illustrate the marked contrariety of opinion which exists upon this important subject. In his address on medicine at the meeting of the British Medical Association in 1871, Dr. Johnson says, “As practitioners of medicine we have something more to do than to watch the phenomena of disease as passive spectators. . . . In our endeavour to prevent, to mitigate, and to cure disease we have a better guide than mere empiricism.”

On the other hand, the author of the address in the present year (Dr. Wilkes) thus expresses himself:—“I say we are still watching, for we do not know the value of symptoms; and, till we do, we have no right to interfere. Our sole duty is to act empirically.”

Again, Dr. Wilks, in supporting empirical therapeutics, says:—“We have found various substances in nature, the most valuable having their histories lost in tradition, which are useful in arresting morbid processes, or in assisting in the completion of necessary changes. Such medicines, when given as experience dictates, have saved the lives of numbers, &c.,” while another recent author on therapeutics (Dr. Rogers) holds that “the sad conclusion is inevitably forced upon us that the *materia medica* of the old school—the result of the accumulated experience of ages—is a worthless, nay, more—as it has frequently been

^a Need I mention the names of Harley, Fothergill, Brunton, Ross, Fraser, Brown, and Purser.

^b See *Practitioner*, Nos. 33, 34, 38, 41, 43; *Lancet*, 1871, Vol. I., *Dublin Quarterly Journal*, May, 1871.

employed—a noxious mass, of what was once regarded as health-restoring drugs.”^a

No doubt, this striking contrariety of opinion is partly due to the different mental characters of the authors referred to, one being a somewhat speculative pathologist, an advocate of the teteological argument for the conservative tendency of morbid processes; the second its stout opponent; an able practical physician and morbid anatomist; while the third is an admirer of the therapeutic nihilism of the Vienna school, which has recently been described as resting in the study of the natural history of disease, waiting with folded hands for the confirmation of the diagnosis in the dead-room.^b

But it is in the science itself that we find the chief source of difference of view, and the true reason why it cannot be made the sole or even the principal basis of a system of therapeutics, and why it must still be said of our art that “its processes are even now mostly empirical, their efficacy being concluded in each instance from a most precarious experimental generalization.” For medicine is in no respect an exact science; neither is it self-constituted or self-contained, inasmuch as it is to a great extent connected with and dependent on other sciences which are themselves incomplete and progressive. It has no foundation in axioms like those of geometry, or the law of definite proportions of chemistry, or the uniform occurrence of phenomena of astronomy. Its scientific interpretations of facts are eminently matters of personal judgment, their value depending much upon the intellectual qualities of the observer.

In short, what was recently said by Dr. Carpenter, in his inaugural address, of the science of geology, may, with at least equal truth, be affirmed of medicine:—“It is that science which most completely represents nature as seen through the medium of the interpreting mind, the meaning of the phenomena that constitute its data being, in almost every instance, open to question, and the judgment passed upon the same facts being different according to the qualification of the several judges: . . . no one who has even a general acquaintance with its history can fail to see that the medicine of each epoch has been the reflection of the minds by which its study was then directed.”

It naturally follows that in no branch of human research has the progress of discovery been more devious and uncertain, or the changes and contrarieties of doctrine more marked than in medicine, and inasmuch as physiologists and pathologists are gifted with “the natural appetite for finding out laws from facts, causes from effects, necessary truth from fleeting occurrences,” we cannot wonder that false theory has hindered the progress of sound therapeutics—to use the words of Cullen—

^a On the Present State of Therapeutics, p. 204.

^b Vide British Med. Journal, October 14, 1871.

“by referring the operation of medicines to certain general indications, most of which have arisen from defects both of physiology and pathology, and are neither sufficiently explained nor well understood: . . . many of the general indications to which the virtues of medicine are referred being at present absolutely suppositious and false.”^a

What was true in the time of Cullen is true now, and the history of medicine and its present position alike teach us that its progress to be assured must be from the art to the science; its principles must be deduced from empirical facts; that the observation of facts and the experience of results must be the basis of all its scientific generalizations, and that most attempts to invert this order and to deduce practice from theory, will prove as they hitherto have proved unsuccessful.

In the present day the tendency of the science is not to encourage credulity as to the power of medicine but its opposite, scepticism or therapeutic-nihilism, and we are called upon by it votaries to discard one after another, many of our most valued traditional remedies. Blood-letting, mercury, counter-irritation, have been thus assailed in turn, as being irreconcilable with the theories of the day. But as Dr. Risdon Bennett^b pertinently asks, “may not these therapeutic traditions sometimes survive, because they possess some inherent principle of vitality, independent of the theories in which they are supposed to have originated? Again, “are we always to assume that the new theories are so unquestionable, placed so far beyond the region of doubt, that all therapeutical traditions must be at once and for ever abandoned if found to be in opposition to the theories of the day?”

Of the truth of the affirmative answer to the first of these questions many illustrations might be cited, while the negative of the second is sufficiently proved by the fluctuating theories of the action of digitalis and of alcohol.

Besides, we have many instances of new theories agreeing with and explaining old empiricisms. Suffice it to refer to the reaction in favour of blood-letting founded on a sounder theory of its mode of action and its consequently more suitable applications.

The revival of the practice of cold affusion in fever in accordance with sound theory (also a revival) is another—many more might be adduced; and such instances will assuredly multiply as we become better acquainted with the *modus operandi* of our remedies as well as “with the strength and tendency of the forces against which we operate.”

At present, in many instances, the latter is to some extent known, while the former is unexplained: thus for example the pathology of weak dilated heart and of its secondary affections is pretty well understood; not so the undeniable beneficial action of mercury in relieving

^a *Materia Medica*, vol. i., p. 30.

^b *Practitioner*, No. 12.

these. I have had repeated proofs of the remarkable power of tartar emetic over unresolved hepatization of the lung of long standing.^a I cannot explain its action; am I therefore to discard its use? I have found Dr. Seymour's^b statement of the curative influence of large and repeated doses of morphia in certain cases of melancholia to be confirmed in my experience. I cannot explain this; am I therefore to doubt Dr. Seymour's recorded cases, and the testimony of my own patients? or rather shall I not, in these and many other instances, believe that with the advances in our knowledge of the intermediate links in the series of morbid phenomena, the more general laws on which these and our curative measures depend will be revealed? for as a great thinker observes, "the farther our extended experience drives back our horizon in time and space, the more explanatory reasons do we add to our store. It is sufficient to examine the history and nature of experimental science to recognize that if there were, or still are, voids in this store it never arises from the explanatory reason failing or having failed in *things*, but always from its failing or having failed in *our minds*. It was existing in nature but scientific men were imperfectly instructed, and had not yet discovered it. It now exists in nature, but we are unable to detect it there."^c

Gentlemen, I thank you for the patience with which you have listened to these desultory observations, whose length must, I fear, have wearied you. I will only add the hope that the session on which the association has entered may be remarkable for the intellectual activity and sobriety of judgment of its members; that the motto of our college, "*Ratione et Experientia*," may be its guiding principle, and that while our younger members are devoting themselves assiduously to the cultivation of biological science (as I know many of them are), *all* may contribute from the stores of their experience to the building up of that great temple of medicine which, to borrow an illustration from the author I have just quoted, as an experimental science "resembles a cathedral commenced in various points at one. Its pillars of unequal height, some almost complete, others half-built, others, again scarcely provided with their first stages, but all indicating by their gradual diminution and converging directions, that a loftier arch must finally re-unite them, the convergence showing in what direction to apply our efforts, and what subsequent labour is required to continue the edifice."^d

^a In one case of three months' duration, in which also there was that form of dropsy described by Rokitsansky as caused by hepatization of the lung, the cure of both the original malady and the dropsy was effected by tartar emetic alone. In this case, as in others, the perfect tolerance of grain doses of the medicine was most remarkable.

^b See his Medical Essays. ^c Taine on Intelligence, p. 528. ^d Ibid., p. 514.

PROCEEDINGS OF THE PATHOLOGICAL SOCIETY OF DUBLIN.

Cancer of the Lung.—DR. A. W. FOOT laid before the Society an exceedingly well-marked example of primary, encephaloid sarcoma of the left lung, exhibiting at the same time the opposite lung, in order to show its perfect immunity from disease. Drawings of each lung, made while the parts were quite recent, were also presented to the Society. The subject from whom the specimens had been taken was an Italian image maker, aged fifty-seven; he had been under Dr. Foot's observation in the Meath Hospital for seven weeks before his death, which occurred unexpectedly from red softening of the left corpus striatum, which had induced sudden, right hemiplegia and aphasia without complete loss of consciousness, lasting seventy hours. He had been ailing for three months before he came into hospital, and was complaining of dyspnœa on exertion, and of a sensation as if a great weight lay across his chest. Examination of the left chest gave all the physical signs of effusion into the pleural cavity, chronic and receding, as the side was somewhat contracted. The sense of resistance, however, to the finger was different from that given by fluid; the heart was not displaced, but intense pericardial friction was audible over a space measuring six inches vertically by five inches transversely. After some time the friction ceased and never returned; universal adherence of the layers of the pericardium was found after death. There were neither enlarged glands, œdema of the left arm or thorax, varicose veins, lancinating pains, hæmoptysis, cachexia, peculiar sputa, hectic, protrusion of intercostal spaces, or any of the phenomena which would assist in a differential diagnosis between fluid in the pleura and cancer of the lung, under which name this form of tumour has hitherto usually been described.

After death the left lung was found diminished in bulk, vastly increased in weight, condensed and infiltrated from base to apex with a cream-coloured growth, irregularly bounded, towards the periphery, by a margin of compressed pulmonary tissue of an iron-grey colour. The only tube traversing the centre of the mass was the pulmonary artery, rendered triangular by pressure, and nearly obliterated. The bronchial tubes had quite vanished, and the pulmonary veins could scarcely be made out even at their exit. About an ounce of clear serum lay in the summit of the cone of the pleura; elsewhere the lung was adherent to the diaphragmatic, costal, and mediastinal pleuræ. The opposite lung was perfectly free from external or internal deposit, enlarged in all its dimensions, congested, and possessed a small supplementary fourth lobe. The left lung was

fused with the left side of the heart and pericardium, but there was no particular implication of mediastinal glands, so as to form any noticeable tumour. Parts of the infiltrated left lung were softer than others, and in 48 hours the thick creamy pulp of this form of sarcoma became very evident on pressing or scraping the cut surface. No organ or gland in the abdomen exhibited any sign of secondary contamination, neither were the axillary or cervical glands infected;—some of the superficial left inguinal glands were slightly enlarged, but not more so than might be caused by cutaneous irritation about the genitals, set up during the 70 hours of hemiplegia. The left side of the arch and the descending aorta were firmly bound to the diseased lung; paralysis of the left recurrent nerve by the pressure had caused an aphonia which suddenly came on about a fortnight before death.

The microscopic appearances of the lung were eminently those of primary encephaloid carcinoma, but microscopic examination showed neither the alveolar stroma nor the large, variously shaped cells of that genus of tumours. The cells were very uniform in size, delicate, round and oval in outline, with many fatty granules and corpuscles of Gluge: it was a very well-marked example of round-celled sarcoma of the encephaloid variety. Dr. Foot expressed his opinion that some of the crumbling debris of a softened portion of the sarcoma had found its way into the pulmonary veins, and thence carried to the brain, had caused capillary embolism in the vessels of the left corpus striatum, but after a most careful examination of the parts he found himself unable to actually demonstrate that this had been the immediate cause of death.—*March 2, 1872.*

Caries of the Temporal Bone.—MR. WILSON exhibited the brain of a boy aged thirteen, who presented himself at St. Mark's Ophthalmic Hospital a week previously, who had been suffering from otorrhœa of both ears, and who was affected with a swelling on the right side of the head, extending from the frontal bone to the occiput, and engaging the region of the ear. On making a careful examination of the swelling there was no doubt it contained fluid, and as this was a very important region, it was sought to determine whether the bone underneath this fluid was diseased or not. There was a strong suspicion that the mastoid process was not diseased, for the swelling extended more towards the temporal region than towards the posterior surface of the ear. The boy had walked that morning half-a-mile, and driven the rest of the distance from one of the outlying suburbs into Dublin. He walked into the hospital, and presented no unusual expression of countenance, no expression of anxiety or distress. He was deaf and dumb, and had become so rather late in life, as he would presently explain. There being this large

swelling containing fluid, and it being doubtful whether the bone was diseased, he decided to cut down upon the matter. He had not only his own opinion to guide him, but that of Sir William Wilde, who had great experience in diseases of the temporal bone, and who was present when the operation was done. On making the requisite incision, a large quantity of thin, foetid, and most offensive matter gushed forth, together with a quantity of air or gas which kept bubbling through the wound. The boy bore the operation very well. A large quantity of pus was evacuated, and he was placed in bed. He walked upstairs to the top of the hospital, and seemed very comfortable. On the following day he seemed somewhat relieved, and eat and made himself understood by signs to nurses and others in the ward. On Sunday he was perfectly conscious, put his tongue out when required to do so, and presented no unusual symptoms whatever, lying in bed in the usual way. On Monday he expressed in writing a desire for arrowroot, and eat a small cupful. After that he (Dr. Wilson) saw him, and he was then lying in a stupid condition, as if asleep. He had a very great objection to be touched. The moment the hand was placed on the skin he tried to get away, and on trying to feel his pulse he put up his other arm to prevent it. He could not be roused up from this condition. He lay slightly curled up, and bent towards the right side, but this might be accidental. He had the right pupil very slightly dilated, the left one being normal. The right side of his face was slightly drawn up, but whether this was owing to a paralysed condition or not he could not say. On the afternoon of Monday, three days after the operation, he died calmly, without any convulsions or evidence of suffering.

On the following morning a *post-mortem* examination was made by Drs. Rainsford and Purefoy. On examining the external surface of the bone where the pus was, no appreciable disease of the parts was found. The temporal muscle was healthy, and the mastoid process was healthy also. There was a good deal of pus about the parts. The periosteum, however, was peeled off easily, but the bone was not discoloured. On opening the cranium and cutting the tentorium cerebelli a large quantity of pus gushed out of an exceedingly offensive character, and of the same nature as that evacuated through the incision on the previous Friday. This continued to exude, and the parts about were bathed in this purulent matter. On examining the brain the membranes were all found to be healthy. The anterior and middle lobes of the brain were healthy; the fissure of Sylvius was also healthy. When they came to the cerebellum they found the origin of the pus in the right lobe, where there existed an enormous cavity, occupying nearly the whole lobe, and extending across into the left lobe, and in which a hen's egg could be inserted. On examining the bone, especially the junction of the

osseous and cartilaginous meatus, there was no channel to be found for the matter coming from within outwards. He could discern none between the cranial cavity and the abscess which had been external to the cranium. On making a section through the cavity of the tympanum and separating the malleus from the stapes, he found all the parts bathed in pus and the spaces filled with cheesy matter. The bone was found slightly blackened, but there was no breaking down of its tissue. The ossicula were all present; the semi-circular canals were filled with soft cheesy substance. On opening the mastoid cells they were found to be still intact, but filled with cheesy matter. At the uppermost part of the mastoid process the cells were found broken down. On examining the inside of the cranium he found the dura mater presented a yellow spot beneath the tentorium, and in the centre of the yellow spot was a perforation. This perforation led into a large cavity beneath the dura mater, between it and the bone. The bone was blackened and corroded, and leading from this purulent depot into the upper part of the mastoid process there existed a perforation; the lateral sinus was compressed by this matter both above and below, and appeared at first to have been completely occluded. On careful examination, however, it was found capable of admitting a fine probe, and on cutting it open it was found to be extensively diseased on the internal surface, as well as on the outer surface; it contained no plug or coagulum. The principal features of the specimen then were—a large abscess in the cerebellum, communicating through an orifice in the dura mater with a cavity beneath the lateral sinus, and from this cavity, by an opening in the bone, with the mastoid cells, which latter were not broken down, but were filled with yellowish cheesy matter.

The history of the case, which he received from various sources, was the following:—The boy was an ordinary healthy boy, going to school in the country up to nine years of age—four years ago. At that time he fell into a river twice in the same day, and remained several hours in his wet clothes. His cap was saturated with wet and adhered to his head. That night he got a shivering, and took ill, and remained in bed for a fortnight, complaining of illness, and being attended by a medical man, who leeches him. His principal complaint was of pain in the head. He was also delirious and moaning, and had sickness of the stomach likewise. He recovered from this illness in a fortnight, and in three weeks was able to go out. His mother, on leading him out, was surprised to find him staggering, as she described it, like a drunken person. She attributed this to the weakness arising from his long confinement to bed, but after two or three times she said she knew it was the head that was wrong, and not the weakness of the limbs. A little stone coming in contact with his foot would cause him to stumble and even fall down. He gradually recovered from this condition, and a fortnight after his illness

he complained of a running from his ears, which continued up to the time of his death, now from one ear and now from the other, but rarely from both ears at the same time. He became deaf, and the deafness increased to totality. His speech became impaired from deafness, and he was finally placed in a deaf and dumb asylum. From time to time he complained of delicacy and occasional irritability of stomach. A fortnight before his death he complained of some pain in the head, and it was then thought he had a cold. He was seen by the medical attendant, who found a slight swelling about the ear, but did not consider the case serious. He was kept in bed for a day or two, and was then brought into hospital, presenting the large swelling in front of and above the ear. He thought this case presented features both of pathological and physiological interest. They all knew that disease of the bone induced, frequently, disease of the brain and its sinuses, that in consequence of abscess in the cavity of the tympanum and ensuing otorrhœa the mastoid cells became broken down and infiltrated with pus, and that the pus found its way to the brain, either directly or indirectly, and killed the patient. They found often an abscess in the brain without any direct communication between the diseased bone and the brain. They found the dura mater and the bone perfect, and yet abscess in the brain. In this case, however, there was perforation in the dura mater and an abscess in the brain. Was this originally a scrofulous inflammation of the cerebellum or a secondary complication of it? Was it primarily disease of the ear, and secondarily of the brain? or were the two concurrent? He was inclined to think that this was primary inflammation of the cerebellum. It was first an acute attack, then became latent, and finally lit up from time to time. The boy had no symptom of cerebral disease that could be ascertained beyond the primary attack of an acute illness. The cavity was very large, and he thought there must have been a strumous deposit there, which gradually increased, causing destruction of the brain substance. He thought that the cheesy infiltration in the bone was concomitant with it, just as in other classes of cases they had scrofulous depots elsewhere in the body, besides the particular depot where it killed the person. The periosteum, as well as the mastoid process itself, were externally healthy, so that they had no indication of disease existing outside. If they had cut down and trephined in the usual place, on the mastoid process, they would not have come on the matter; unless they went very high and deep, and cut almost completely into the cavity of the cerebellum the matter could not have been got at. The great extent of the abscess was scarcely compatible with only a fortnight's slight illness, and that the brain was originally the seat of diseased action the history, as supplied by the mother, seems to point out.—*March 2, 1872.*

Meningitis.—DR. MACSWINEY said the specimen which he presented to the Society exhibited, when it was removed from the dead body four days previously, a very excellent illustration of basic meningitis. The patient from whose body the morbid specimen was taken, was a boy fifteen years of age, who died in Jervis-street Hospital four days ago. He came to Dublin a year ago, and was apprenticed to a draper, and although a dull and delicate-looking boy, he was never known to be sick during the year he spent there, until about four weeks ago, when one evening, as he was transacting a sale with a customer, he was noticed suddenly to become incoherent, to assume a wild or dazed appearance, and to be unable to finish the sale in which he was engaged. He was removed to his bedroom, and a medical gentleman was sent for. A few moments after he was sent to his bedroom he was “seized with a fit,” and from the description given of this fit, he concluded that it was of an eleptiform character. There were violent convulsions, which lasted for two or three minutes; and at the close of the fit, the medical gentleman who had been sent for, Dr. Ryan, came in. He learned that the boy had just suffered from a fit, and he found him in a sort of idiotic, silly condition. He was grasping at the bed-clothes, and did not appear to have the least idea where he was or what had happened.

Dr. Ryan saw him day after day for about a week. During this time there was nothing particularly worth relating noticed in his state. He was weak, pale, sick, and unwilling to get out of bed. However, at the expiration of a week he did get up, and resumed for a day or two his avocations in the shop. Again, however, he was seized by a fit at the end of ten days after the first one; and as soon as he recovered from the second fit, which bore a great similarity to the first one, he was taken to Jervis-street Hospital.

On visiting him, the morning after his removal to hospital, Dr. MacSwiney found his condition to be the following. He lay curled up in the bed, and was most unwilling to be disturbed; when he was disturbed, however, and spoken to, he answered the questions put to him in a perfectly correct and collected manner. But what was very remarkable was, that, in the course of a conversation of two or three minutes, he would occasionally cry out, and give expression to a low moaning, complaining, and irritable utterance; and on being asked what was the matter with him, would answer, “Nothing.” His sole complaint was of pain in the head, and that not at all of a severe character. He was daily minutely interrogated as to his symptoms; but during the entire time he was under observation, he always answered that his only complaint was pain in the head. This pain was of a peculiar character. It was not a neuralgic pain—severe, sharp, intermittent, and fixed in one place; but it was a dull, not very severe pain, constantly present, and referred to the entire

cranium. This character of pain assisted him, Dr. MacSwiney, in the diagnosis ultimately arrived at and announced. He noticed that there was greatly increased cutaneous nervous sensibility. The slightest touch of the hand over the boy's body caused him to wince, and exclaim loudly, as if in pain. He had, in fact, general hyperæsthesia of the surface. His pulse ranged from 110 to 120; his tongue was coated with a whitish fur. Both the pupils were equally and slightly dilated, and very sluggish. His secretions and excretions were normal. He never desired particularly to eat or drink, but took what was brought to him, and made use of it. His time was spent when in hospital either in a state of quiescence, curled up in bed, or talking noisily in a rather incoherent manner. At intervals he would rise from bed, walk about the ward as if looking for something, and, when spoken to, would not be able to tell what was the matter with him, and would get back to bed again in an uneasy, dissatisfied way. Nothing else occurred in the course of his illness, save that he gradually became weaker, notwithstanding that every effort was made to keep up his strength; and on Wednesday last he was found to be so weak that an attendant was told off to visit him every half hour; and notwithstanding this, he died unobserved, in the interval between one visit and another. He was found dead, having died perfectly quietly, without any convulsion or outward manifestation of the approach of death. The death occurred between four and five weeks after the first convulsion.

On examining the brain, it was found that the vessels of the upper part of that organ were greatly loaded with black blood. The arachnoid, as it extended across from one convolution to another, was whitish-looking and opaque in character—markedly so where the membrane covered the cerebrum. But the chief pathological appearance existed at the base of the brain, in the middle subarachnoid space. There, in a space half an inch square, about half a teaspoonful of very thick, tenacious, greenish-yellow secretion, consisting of lymph and purulent matter, was found spread upon the under surface of the brain, and closely and intimately adherent to its structure. Over other portions of the anterior, inferior convolutions, there existed small tubercles, the fingers rubbed over the elevated parts becoming conscious of a roughened, thickened surface, which, upon minute inspection, was found to be occupied by three or four round, hard, pearl-coloured bodies, with all the character of tubercles. The lungs were examined; and, in confirmation of the nature of the disease, it may be stated that, about two or three dozen tubercles, scattered over the surface of each lung, were noticed. The pleura was adherent, from rather recent and easily broken up adhesions.

The nature of the case had presented some difficulties in its recognition during life, but the following considerations were held to justify the serious diagnosis and prognosis arrived at:—

Firstly, The fact that the "fits" were not recovered from, each time, in that complete manner characteristic of fits due to functional disturbance.

Secondly, The character of the head-pain—dull, constant, universal over the cranium, the reverse of what is observed in neuralgia.

Thirdly, The listless decubitus; the moaning complaint referred to nothing in particular; the torpid and dilated pupils.—*March 2, 1872.*

Encysted Pleurisy.—DR. A. W. FOOT exhibited the thoracic viscera of a young man, aged eighteen, who had died in the Meath Hospital on the sixty-seventh day of his illness. The pathological objects in the preparation were an encysted pleurisy below a compressed and œdematous lung, and caseous degeneration of enlarged bronchial glands on the left side; those on the right were merely enlarged and engorged with blood; near the centre of the indurated left lung were two bronchial glands, distended to the size of walnuts, with a caseous exudation; the thickened costal pleura exhibited many opaque yellow patches and stripes, where the exudation was undergoing the same metamorphosis as had taken place more extensively in the bronchial glands. Interesting points in the case were, the obscurity of the nature of his illness, the latency of the symptoms, and the difficulty which arose at a late period as to the propriety of performing an operation upon his chest.

When admitted into hospital he had several symptoms of continued fever, but not those usually characteristic of the enteric type—eruption and diarrhœa were both absent. Dr. Stokes considered the case to be one of irregular enteric fever, masked by tuberculosis, in the earlier acceptance of the word. During the fifty days he spent in hospital, seventy-two observations of his temperature were made, and only once was his temperature as low as 100 deg. Fahr.; from seventy-one observations upon his pulse, the average rate was found 104·34. He made no convalescence; his respiration gradually became embarrassed, and the upper part of the body œdematous, especially on the left side, then general anasarca set in, with orthopnœa, aphonia, and occasional epistaxis. The evidences of fluid in the left side were distinct, so far as dulness on percussion, immobility of the side, protrusion of the ribs, widening of the intercostal spaces, were concerned; while on the other side, the valuable aid of local fremitus was out of the question, as the patient was aphonic; the œdema of the parietes was invalidated as a diagnostic mark, by the fact of the existence of anasarca, and of the decubitus being habitually, even during orthopnœa, sinistral; the heart was not displaced. Under the circumstances it was thought prudent, seeing that death was imminent, to give the boy a possible chance, by making an exploratory puncture in the chest. No. 1 trocar was introduced in the usual situation

and manner; about one ounce of clear serum came away, and the flow stopped; a larger trocar was then introduced, and another ounce of clear serum having come out the flow stopped; the wound was then closed. The boy seemed relieved after the operation, and expressed himself so; he became able to lie down, which he had previously been unable to do. He died six days afterwards of asthenia and asphyxia. The passage made by the trocars was traced, leading through the greatly thickened costal pleura into the apex of a cavity which contained twenty ounces of fluid. This cavity had the diaphragm for its floor, was bounded laterally by the pericardium and the lower ribs, and was limited above by the base of a compressed and œdematous lung, from off which diverged the elsewhere cohering laminæ of the left pleura. The interior of this cavity was crossed and recrossed by bands and strings of lymph, some of which probably had obstructed the orifice of the canula. The puncture was made just at the place where they were thickest and most numerous, but fortunately below the lung, which was adherent to the side immediately above the site of the collection of fluid. The exudation on both costal and pulmonary pleuræ was undergoing caseous degeneration; some indurated portions of the left lung showed indications of the same change, but it was most remarkable in the lymph glands connected with that lung; both those within the organ and the larger ones in the vicinity of the primary bronchi; there were no true, grey, specific miliary tubercles in either lung.—*March 9, 1872.*

Myxomatous Tumour of the Brain.—DR. T. E. LITTLE presented to the Society's notice the brain of a man who had died some days before in Sir Patrick Dun's Hospital, and said: This specimen exhibits the morbid parts in the case of a patient who died from the effects of disease of the base of the brain.

The clinical facts of the case are so characteristic and so illustrative—as bearing upon the localization of the cerebral lesion—that they deserve to be dwelt upon in some detail. The patient, a man aged thirty years, was admitted to Sir Patrick Dun's Hospital on March the 12th, and died on the third day after admission. While in this hospital he presented a remarkable association of paralytic symptoms. He had cross-paralysis of the right side—the right side of the body, and the left half of the face being paralysed; there was also slight paralysis of the left lower extremity, so that on admission he was quite unable to walk; there was great difficulty of speech, such that, though he frequently endeavoured to express himself verbally, it was only by signs that he could be understood by those around; the tongue, when protruded, pointed to the right side; from the moment of his admission until his death he suffered from almost complete inability to swallow, every endeavour to make him take any

nourishment inducing distressing attacks of suffocation; his breathing was oppressed and gasping; sensibility everywhere appeared to be unimpaired. Shortly after his entry into hospital he sank into a condition of collapse, with cold, clammy surface, small rapid pulse, 140 per minute, and rapid and irregular respiration, in which state he died.

This man had been admitted to the Whitworth Hospital in the month of November, 1871, and remained there some three or four months. His prominent symptoms, during the time of his residence there, are recorded to have been, partial facial palsy of the left side; slowness and difficulty of speech; great difficulty of swallowing; cough and impeded respiration; slight impairment of motion of the right arm; and numbness and deficient mobility of the lower extremities. He could, however, then walk. While in the Whitworth Hospital these symptoms became much aggravated, more especially the difficulty of deglutition, which was at one time so urgent that it was considered necessary to have recourse to nutritive enemata. He also experienced, while there, a slight and transitory attack of paralysis of the left third nerve, and lost for a time perfect control over the rectum and bladder. From the history of his affection, elicited at this time, it appeared that his symptoms had commenced some five months previously, the first and chief of these being the difficulty of swallowing. There was no history of syphilis, or any other constitutional taint.

A *post-mortem* examination was made on the day of his death. The brain and its membranes were unusually anæmic. A considerable quantity of slightly turbid, pale-coloured serum occupied and distended the ventricles—the left lateral ventricle was more particularly enlarged and expanded, and the aqueduct of Sylvius was much dilated. The corpora striata, optic thalami, and corpora quadrigemina of both sides were healthy. The cortical regions of both cerebral hemispheres were also healthy. Two small greyish-coloured tumours, each of about the size of a split pea, existed in the substance of the medullary portion of the left hemisphere, the one in its middle, the other in its posterior lobe. The main mass of disease discovered, however, is that present in the parts shown, viz., in the left side of the medulla oblongata, and the adjacent posterior part of the pons Varolii. In these regions the cerebral substance is converted into a soft, swollen, jelly-like mass. Looked at externally from the under surface, there is considerable protrusion of these parts on the left side, the normal superficial sulcus between the two being lost. The arachnoid membrane in this situation is opaque, much thickened, and adherent to the diseased mass. On opening the fourth ventricle, so as to expose the tumour from above, this cavity is seen to be altered in shape and appearance; it is increased in size, being much

broader than in the normal state, and its floor is bulged upwards, and of darker colour, and more homogeneous appearance, than natural. To the touch, the swollen mass was, in the recent specimen, soft, and conveyed a spurious sensation of fluctuation, so as at first view to suggest the idea of the existence of an abscess.

On making a vertical section, to the left of the mesial line, of the diseased portions of the pons Varolii and medulla oblongata, the surfaces of the section bulged outwards, and presented none of the appearances of the central parts of these structures in health, the whole being converted into a homogeneous, semi-translucent mass of a greyish colour. This aspect of the tumour presented, in the recent state, an appearance not unlike that of the section of an ordinary nasal polypus. In size, the diseased region equals about half that of a small walnut. To define the exact boundaries of the tumour is difficult, as there is no trace of any attempt at the formation of a distinct capsule or limiting membrane to it, its circumferential parts passing gradually and imperceptibly into the surrounding healthy nervous tissue. Sections, however, made in various directions, show that its most central part is situated in the upper region of the left half of the medulla oblongata, at about the position of the corpus dentatum—no trace of which structure remains—and that from this it extends so as to involve the whole thickness of the medulla on this side, transgresses the mesial line above to a slight degree, and extends into the superficial part of the pons Varolii on the left side.

A microscopic examination of the tumour shows it to present, in a very typical way, the appearances of a myxoma, and the chemical tests for mucin, applied to it in the fresh condition, yielded evidence of the presence of that substance in abundance. Throughout the whole mass there are also numerous nervous elements, both nerve fibres and nerve cells, the latter of singularly healthy and well-marked appearances.—*March 23, 1872.*

Hepatic Abscess.—DR. M'DOWEL laid upon the table an example of very large hepatic abscess, taken from the body of a man aged twenty-three, who had been admitted into the Whitworth Hospital, on the 13th of March, suffering from enlargement of the abdomen, severe pain in the right hypochondriac region, and swelling of the legs.

He stated that he had been unwell for six months, but only noticed the swelling of the abdomen and legs one week before the date of his admission.

Upon examination it was found that the liver was immensely enlarged, extending upwards as far as the third intercostal space, downwards below the level of the umbilicus, and across to the left side; it was smooth to the feel, and painful on pressure. The feet and legs were œdematous, and

the superficial veins of the abdomen and lower extremities turgid. There was ascites, severe diarrhœa, and occasional perspiration; there was also dyspnœa, and the right side of the chest was dull on percussion. He was very pale and emaciated, and his countenance expressed great distress and anxiety. He died in a few days after admission.

Autopsy.—The liver, which was intimately adherent to the diaphragm, peritoneum, and right kidney, was found to fill the greater part of the abdomen. It had pushed the diaphragm upwards as high as the third rib upon the right side. The right lobe which formed a large, smooth, globular tumour, contained seven pints of purulent matter, after the removal of which the organ was found to weigh five and a-half pounds. The sac of the abscess was smooth, and lined with lymph. The lungs were greatly compressed, but healthy in structure.—*March 23, 1872.*

Leucocythæmia.—DR. HAWTREY BENSON exhibited the spleen of a man who had been sent to him by Dr. Davy, of Kimmage, and who died in the City of Dublin Hospital, from the effects of a rather rare and very interesting disease, Leucocythæmia. The man had a large tumour in the left hypocondrium, extending an inch and a half below the level of the umbilicus, and displacing the diaphragm upwards. The liver was considerably enlarged. The lymphatic glands throughout the body, especially those in the groins, neck, and axillæ were greatly enlarged. The lower extremities were anasarcaous, and a tendency to the same condition existed all over the body. There was no evidence of fluid in any of the cavities. The heart was quite sound, but the temporal arteries were very large and throbbing, and he complained of vertigo, headache, and noises in the ears, &c. Dyspnœa was a prominent symptom. He had also some diarrhœa, and copious sweating. The urine was not albuminous. The diagnosis made was that the disease was leucocythæmia, and Dr. Purser examined some of the man's blood and verified that diagnosis. The appearance of the blood under the microscope was very striking. At first one would think the whole field of the microscope was occupied exclusively by white blood corpuscles, but a moment's attention showed that there were also a considerable number of red corpuscles, concealed partly by the size of the large white corpuscles, and partly by their having run into rouleaus and concealed themselves; however, Dr. Purser thought there were at least, *as many white as red corpuscles*. On the fourth day after the patient's admission, he (Dr. Benson) was called suddenly to his bedside, and found him in a comatose condition. There was stertorous breathing, and contracted pupils; pulse 120. The patient died soon afterwards, and a careful *post mortem* examination was made.

The spleen weighed 6 lbs. 10 ounces and a quarter. The liver was

greatly hypertrophied; it weighed 6 lbs. 14 ounces and a half. The thymus gland was also largely hypertrophied, being two inches long by one and a half broad, and half an inch thick. The mesenteric glands and the bronchial glands were greatly enlarged. The supra-renal capsules were not visibly altered. Peyer's patches and the solitary glands in the ileum were thick, prominent, and fleshy, but showed no tendency to any other change.

The appearances when he removed the heart were very striking. On cutting the great vessels a quantity of blood came out, and floating on it there were a number of white or greyish flocculi, giving the appearance as if pus had found its way into the vessels. In the heart a number of large, greyish-yellow coagula, with little adhesion or firmness, were lodged, more resembling bloody, grumous sloughs than the ordinary fibrinous clots so often found there.

But it was in the brain that the most interesting appearances presented themselves. Before describing them he would refer to a series of papers, by Ollivier and Ranvier, in Brown-Sequard's *Achives of Physiology*, which had been brought under his notice by Dr. Purser. One of those papers was devoted entirely to the consideration of cerebral hæmorrhage in leucocythæmia; and it would appear that its occurrence in that disease was not so uncommon, as it was thought to be up to the time of the writing of their first communication on the subject, in the previous year 1869. Up to that period it was regarded as a purely fortuitous complication, or a simple manifestation of blood dyscrasia. The writers to whom he referred had established, however, that the hæmorrhage depended on a special disturbance of the circulation, due to the altered physical character of the blood. That is to say, it depended on the fact that the white blood corpuscles accumulated in the capillaries of the brain; that the vessels behind these accumulations distend and finally rupture. It would appear from this paper, that the most usual form of hæmorrhage is capillary, but, occasionally, larger vessels give way. These authors had collected eight examples of cerebral bleeding of this kind, and the largest number of distinct hæmorrhagic centres in any of these eight cases was six. In his (Dr. Benson's) case there were vastly more. There were certainly not less than 50 distinct hæmorrhagic clots in the brain, and of these fifty, eight or ten were as large as walnuts. It would be interesting to consider the connexion between some of the symptoms the patient displayed during life, and the abnormal condition of the blood. As Ollivier and Ranvier were the first to point out the connexion between cerebral hæmorrhage and leucocythæmia, so they were also the first to elucidate the symptoms that accompanied the disease. They had shown that the symptoms referred to the brain, such as headache, vertigo, noises in the ears, &c., are to be ascribed to the accumulation of the white blood

corpuscles in the capillaries, causing a slowing of the circulation in the brain, and thereby, more or less anæmia of the organ. In the same way, the dyspnœa was to be explained. The white globules collect in the capillaries of the lung, causing anæmia of that organ. Ascites was partly due to the same condition—the accumulation of the white globules in the capillaries of the liver, causing a slowing of the portal circulation, followed by effusion; the same condition in the peripheral circulation would, in great part, account for the general anasarca.—*April 13, 1872.*

Fracture of the Ribs.—DR. ORMSBY brought the following case under the notice of the Society. A woman, named Rosanna Kelly, aged fifty-five, was brought to the Meath Hospital at about half-past twelve, a.m., on Monday, April 8th. The resident pupil discovered, on examination, that life was extinct. It appeared that about half-past eleven on Sunday night—*i. e.*, an hour before the body was brought to the hospital, she was assaulted by her son, who was drunk. He knocked her down with a stool, kicked her savagely, and broke the stool on her head and sides. She was conveyed by the police to the Meath Hospital, but died just before they reached the gate.

The *post-mortem* examination showed that there had been hæmorrhage from the nose, from the left ear, and from a cut over the left eye. Emphysema extended over the entire thorax up to the throat. There was a scalp wound over the left ear, and great effusion of dark blood under the scalp. There was also effusion of blood under the calvarium, and a large amount of serous fluid at the base of the brain. On opening the thorax, the 3rd, 4th, and 5th ribs of the left side were found to be fractured, and the left lung ruptured in three places, corresponding to the fractures of the ribs. The lungs and heart having been removed, the last six ribs, also, were found to be broken behind, close to the spine. There was effusion of blood along the spine and ribs, underneath the integument and in the muscular tissue of the back. The lungs were adherent, and contained tubercular matter.—*April 13, 1872.*

Extensive Osseous Depositions, implicating the Articulations and Muscles.—MR. EDWARD HAMILTON brought under the notice of the Society an exceedingly remarkable specimen of morbid depositions of bone in various parts of the body. He said that the skeleton on the table was that of a female, whose body was brought to the Medical School of Steeven's Hospital, for anatomical purposes. He had not been able to obtain any clinical history respecting the disease. The woman was supposed to have been about thirty, and had been eight years ago a patient in Steeven's Hospital; nothing but a remarkable peculiarity of gait was then observed. At Mr. Hamilton's request Mr. Bookey had preserved the skeleton and had furnished him with an account of the *post-mortem* examination.

The body was inclined to the left side, and the head bent forwards. The arms were closely applied to the sides, and the forearms flexed and pronated. There was no motion in the shoulder-joints, nor of the scapulæ upon the trunk. The left side of the thorax was contracted, and the right ilium was nearly in contact with the ribs. The lower limbs were flexed and adducted, the right leg and foot much inverted, and the ankle-joints stiff.

When the skeleton itself and the muscles were examined, the following conditions were observed. Along the anterior border of the left masseter muscle, from its origin to its insertion, a bridge, as it were, of bone had formed, which completely prevented any movement of the lower jaw. The woman, he ascertained, was in the habit of feeding herself by introducing the food into her mouth in extremely small morsels, mastication being impossible. On this side there was a large mass connected with the teeth; it resembled tartar, and did not contain any bony structure.

The head was firmly and immovably joined to the upper cervical vertebræ. The spinal column may be said to have consisted of a single bone, the cervical, dorsal, and lumbar vertebræ being firmly joined to each other by copious depositions of bone. The clavicles were reduced in size and distorted in shape. The left shoulder-joint was perfectly stiff, and a large mass or plate of bone was fixed to the humerus, in the vicinity of the insertion of the great pectoral muscle: it passed upwards to the coracoid process, and extended downwards, forwards, and inwards, till it became identified with the costal cartilages. It seemed to be formed in the areolar tissue between the two pectoral muscles. In the elbow-joint, there was a tendency to eburnation and the formation of bony growths, such as are seen in chronic rheumatic arthritis. The chest was flattened and the ribs forced downwards towards the spine. The pelvis was large, and had the appearance of being pushed over towards the right side.

Connected with the shaft of the right femur, and with the trochanters, immense osseous growths, resembling stalactites, had formed, into which were fixed the fibres of the extensor muscles. Similar growths occupied the dorsum of the ilium. An ossific deposit in the attachment of the tendons of the quadriceps extensor muscles, caused the left patella to present the appearance of having been the seat of fracture. The bones and muscles of the leg were free from disease, but many of the ligaments in the sole of the foot had undergone complete ossification.

The dorsal aspect of the skeleton presented appearances equally interesting and remarkable.

Enormous plates of ossific matter occupied the cellular planes between the muscles of the back, extending upwards to the occipital bone, outwards towards the inferior angle of the scapula and the humerus, and

downwards to the crest of the ilium, where the masses of bony material were extremely large, consolidating the hip-joints completely.

The osseous deposits in front of the left femur were very peculiar in their arrangement, and bore a considerable resemblance to a second femur. At first sight they seemed to be the result of ossification of the rectus muscle. This, however, was not the case, as that muscle was found lying in front of the deposition which had been formed in the cellular tissue between the rectus and cruræus. On being examined with the microscope, the new osseous material was found to present the characters of true bone.

Mr. Hamilton observed that it was an extremely difficult matter to explain or throw any light on the pathology of this very remarkable disease. He alluded briefly to a case of an apparently similar nature, recorded many years ago by Mr. Cæsar Hawkins, in which the affection followed upon repeated attacks of rheumatic inflammation. In this instance the deposit, which was examined both microscopically and chemically, differed in no respect from true bone.—*April 13, 1872.*

Extensive Osseous Depositions, implicating the Articulations and Muscles.—

DR. BENNETT exhibited to the Society a skeleton similar to that laid on the table at this meeting by Dr. E. Hamilton, and also a cast taken from the body of a child still alive, who suffers from disease apparently the same as that which had developed the remarkable characters of these skeletons. He said:—

I have brought these specimens before the Society to-day, as I was aware that Dr. Hamilton intended to exhibit the skeleton on the table at this meeting. I thought that possibly our scanty knowledge of the disease which they illustrate might be extended by the examination of the facts of three instances of it simultaneously.

This skeleton (Clarke's) has been a great number of years in the collection of Trinity College, and is, I have no doubt, familiar to many members of this Society. I do not know how it came into the possession of the College, but a full account of the case has been published more than a century ago in the *Philosophical Transactions*, with an engraving representing front and back views of the skeleton. Two accounts of it are given in the *Transactions*, the chief one (No. 461—A. D. 1741), by Robert, Lord Bishop of Cork, and a shorter note by John Copping, Dean of Clogher. A third and somewhat different account of the case is published in *Smith's History of Cork*, derived from the notes of the dissector of the specimen, Dr. Edward Barry, of Dublin, and published with his permission by Smith in anticipation of the publication of the originals. It is curious that Smith denies the accuracy of the accounts published in the *Philosophical Transactions*, while he himself reproduces

them in great part, and in copying the engraving attached to the Bishop's paper, represents the chief mass of bone on the right side of the back of the skeleton instead of on the left, in which it occurs both in the Bishop's representation and in the original. The description given by Smith in his text shows that this error has arisen in the copying of the engraving. The following extracts contain the chief facts of the case.

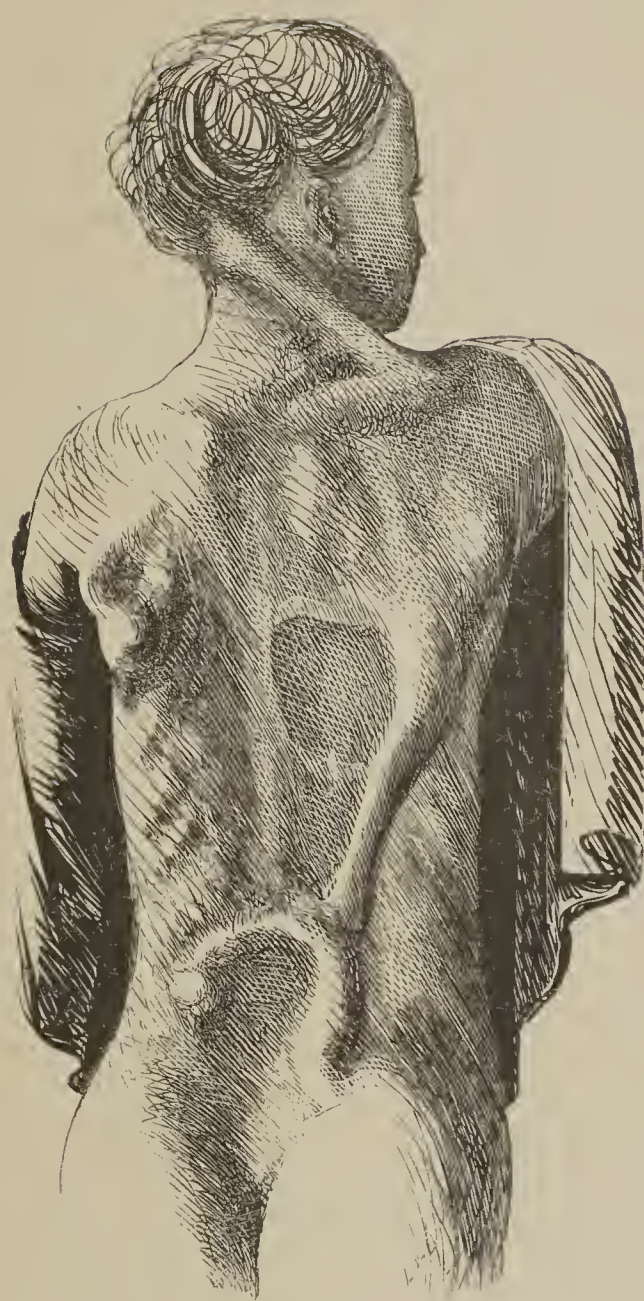
“In his infancy, he never was observed to turn his head round nor to bend his body . . . At about eighteen years of age he began to be unwieldy, and so continued, growing more stiff, till he lost all use of his limbs, and died in the sixty-first year of his age. The posture into which he fixed at last, was somewhat like that of the Venus of Medicis (a strange simile), only that his right hand was the lowest, and the left hand did not rise higher than the elbow of the right. He was originally deformed, his left shoulder rising higher than his right; the vertebræ of his back were exceedingly bent inwards towards the lower part, with an inclination towards the left hip. The os sacrum was so bent outwards that you had no sight of it at all. His left knee did not come down so low as the right by three or four inches. There was hardly one bone in his body in the figure it ought naturally to be, except the bones of his legs, which were not much distorted. He was one entire bone from the top of his head to his knees. His head seemed regular, and the sutures pretty distinct, though more united than in common skulls. His jawbones seemed entirely fixed, and grown together, as were also the teeth in the hind part of the jaw. His fore-teeth were very irregular, which left a vacancy for him to suck in his food at. Out of the back of his head there grew a bone, which shot down towards his back, and passed by the vertebræ of the neck at about an inch distance: this bone united to the vertebræ of the back, and the scapula of the left shoulder, from whence it disengaged itself again, and continued distinct, till it divided into two towards the small of the back, and fixed itself into both the hip bones behind. The vertebræ of the neck and back were one continued bone. In the fleshy part of his thighs and buttocks nature seemed to have sported herself in sending out various ramifications of bones from his coxendix and thigh bones, not unlike the shoots of white coral, but infinitely more irregular: some behind, and some before; some in clumps and clusters, and others, irregular shoots of eight or nine inches in length. You could not pass your hand between his two knees, which inclined much towards the right, his left shoulder being the highest. One of the bones of his left arm was once broken by a fall, and nature had shot out another bone, and made it much stronger than it was before, though the bone seemed more liable to decay about the place where it was formerly broken. All the cartilages of his breast, four only excepted, were turned to bone. These four served to move his breast in respiration . . . When he was dissected there was

a bone found in the fleshy part of his arm, quite distinct and disengaged from any other bone; it was very thin, about four inches long and a quarter of an inch broad, with several ramifications. Yet while these bones were growing, he never complained of any pains in his muscles . . . In his youth, he made a shift to creep with difficulty through the village of Newmarket, but as he advanced in years he grew more inactive, so that at last he could scarce go the length of Mr. Aldworth's kitchen, where he spent most of his time. That gentleman maintained him in charity while he lived: the only use he was capable of being put to was to that of watching the workmen; for when he was once fixed in his station it was impossible for him to desert it."

A glance at this skeleton serves to show the identity of the disease with that which has occurred in Dr. Hamilton's specimen. In both we have the same distribution of bony growths, the same fixing of joints, and the same advanced age.

The history of the little girl from whom I have taken this cast is this:—She is now eleven years old, and except for the bony growths which produce this deformity, apparently perfectly healthy. She is the fourth of seven children; her parents are alive and healthy, as are all her brothers and sisters; none of her family have any similar affection, nor do her parents know of it having occurred in any relative dead or living. In infancy, while she was at the breast, the disease first showed itself as a swelling over the shoulder on the back of her neck. Various opinions were formed of its nature; the earlier that the glands of the neck were affected, then that the spine was diseased, and this opinion led to her being kept for many months lying flat in bed or in a little carriage. After a long trial of this treatment, my colleague, Professor Moore, to whom I am indebted for the opportunity of examining the case and obtaining this cast, was consulted by the child's parents. He perceived that the disease was not in any way referrible to caries of the spine, and ordered the discontinuance of the treatment directed, with that view. A great change for the better occurred in the child's health as the result of this change of treatment; she became lively and active, got a good colour and became fat. No check, however, took place in the abnormal growths of bone in the muscles of the back. Two years ago I first saw the child, and was at once struck with the likeness which her back presented to Clarke's skeleton. No doubt remained on my mind, when I again saw her this year, that this was the correct view of the case. The bony growths had become so fully developed and so well defined, that it merely required one to have seen the skeleton to recognize the nature of the case.

On looking to the cast, the similarity of the bony growths in this child to those which are present in each of these skeletons is easily seen. On the right side, from the occipital protuberance to the supra-spinous fossa,



there stretches a bone which appears to be seated in the trapezius muscle; irregular masses of bone are deposited in the position of the rhomboid muscles, and processes shoot upwards and inwards from that portion of the latissimus dorsi muscle which covers the angle of the scapula on either side; from these, branches shoot down in the line of the fibres of the muscle, and its aponeurosis to the crest of the ilium; that on the right side being much the more complete and fully developed. Across the middle and upper part of the loins, transverse bars are developed between the growths which follow the direction of the fibres of the muscles. The growth attached to the occiput seems in the cast to pass the middle line and extend to the left side; this appearance is due to the fact that in laying the child flat, to take the cast, her head was, for convenience, turned to one side. As yet no bony growth can be felt in the pectoral region or about the hips, but a spur has commenced to grow from either ulna near the attachment of the pronator quadratus muscle. The child is active on her legs, can run well in a straight line and on the flat, but her gait is very stiff on inclining ground or in turning a corner. She has no pain in these growths, and never has had any, the constrained position of the head, shoulders, and back being her only trouble. She eats and drinks and sleeps as well as any child of her age. There is no sign of any rickety deformity in any part of her body. Comparing this case with Clarke's, we see that the time and mode of commencement of the disease is similar in the two instances; in both, the growths have dated from infancy and have commenced in the neck; in both they were painless, and slowly increased in the same directions, affecting both sides, but unequally. In neither case is there any feature of rickets to be found. The examination of Clarke's skeleton and of the living child, suggests that the bony growths are developed in the muscular structure, but this idea is, we see, corrected by the dissection made in Dr. Hamilton's case; the great similarity between the skeleton exhibited by him and that of Clarke leaves no doubt that, whatever has been the seat of the development in one case, the same was its seat in the other. Lastly, the prognosis in the child's case, if we are justified in basing any on the facts observed in older cases, must be that the disease will slowly progress, while there is no reason to expect that it will directly shorten life.—*April 13, 1872.*

Compound Fracture of the Cranium.—DR. CORLEY presented to the notice of the Society a specimen of fractured skull, which he said owed its interest, in some degree, to the fact, that it was the third of a series presented within the month, in which the process of trephining had been performed. On the evening of the first of March, a woman, named Lawler, fell down stairs whilst intoxicated, and was brought into Jervis-

street Hospital at midnight in a state of coma, exhibiting a compound, depressed fracture at the left side of the occipital bone, between the superior curved line and the lambdoid suture. The coma was accompanied by some of those symptoms which are usually considered as almost pathognomonic of fracture of the base of the skull, viz., bleeding from the ears, with *whiffing* respiration. The insensibility was absolute, and the pulse full, labouring, and numbering only 40. The question to be decided was, whether in the presence of such symptoms, operative interference was justifiable. The difficulty of arriving at a correct conclusion is illustrated by Dr. Smyly's case, detailed by Dr. Ormsby, in which no symptoms were present to indicate that the fracture extended beyond the place operated on, although, as was afterwards proved, the base was implicated. As cases presenting the above grave symptoms occasionally recover, the conclusion to be derived is, either that they do not always truly indicate fracture of the base, or, if they do, that that accident may be recovered from. In fact, within a few days of the operation, a patient was admitted into Jervis-street Hospital in whom these symptoms were present, but who, after some time, left perfectly recovered. As there was in Lawler's case a distinct compound fracture, with depression, and as that lesion *might* be the sole cause of the symptoms, it was decided to raise the depressed bone, with the hope that no other lesions were present. Unfortunately, these favourable anticipations were not realized, and the only effect of the operation, which was performed at two o'clock, a.m., on the 2nd of March, was to raise the pulse from 40 to 60. The patient died at four p.m., on the same day.

A *post-mortem* examination showed that the fracture had implicated the base of the skull extensively, a fissure running from the depressed portion across the petrous process of the temporal bone, as far as the cribriform plate of the ethmoid. A second fissure crossed the basilar portion of the occipital bone. A more remarkable circumstance was, that on the right of the occipital bone and a little to the side of the foramen magnum and behind the lateral sinus, there was a fissure nearly an inch long confined to the occipital bone and unconnected with any other lesion, as if it had been caused by *contre coup*. On the right side of the cerebrum there was found a blood clot, large enough to conceal almost completely the surface of the hemisphere, and the pressure of which would have been quite sufficient to explain all the symptoms.—*April 13, 1872.*

Cancerous Tumours in the Mediastinum.—DR. HAYDEN said the specimen he was about to exhibit was one associated with very great interest in regard to diagnosis. The subject of the disease was a young man aged twenty-nine, a cabinet maker by trade. He had been intemperate in early life, but latterly not so. He saw him for the first time on the 25th of last

July. He was then brought under his notice as an extern patient, and as presenting an example of supposed thoracic aneurism. His own account was that, two months previously, for the first time he noticed that he was out of health, and the first change he observed was a swelling at the root of the neck. Subsequently he lost his voice, "on and off," as he expressed it, and, a few days before Dr. Hayden saw him, he spat some blood in the morning.

When he saw him, his condition was shortly the following:—He was chilled, out of sorts. He stated that he could not lie comfortably on his right side. When he attempted to do so he was obliged to turn on the left side, owing to the tumultuous action of the heart that instantly ensued. His face was livid, especially the lips, the lobes of the ears and the tip of the nose. The neck was likewise tumid, the cervical veins distended in a high degree, and the upper part of the thorax was œdematous and livid. The pulse was 120, very weak, but regular, and somewhat weaker on the right side than on the left. He had no difficulty in swallowing. A general examination of the chest led to the following results. The entire surface was resonant on percussion; respiration was likewise audible on both sides, at all points save under the right clavicle, where there was a total absence of respiratory sound. At mid-sternum there was a harsh murmur with the first sound of the heart; it was diffused over the entire anterior surface of the sternum; over the lower end of the sternum a strong diffused impulse was felt, whilst no movement was discoverable in the normal seat of cardiac impulse; systolic murmur was likewise audible on both sides posteriorly, but louder on the right, inside the angle of the scapula, than on the left. No impulse was anywhere discoverable behind.

On the 20th of September, he admitted the man to Hospital, and when he saw him for the second time his condition was somewhat altered in degree and in kind. Thus, for example, there was very much greater œdema and lividity of the face, greater tumefaction of the neck, greater distension of the cervical and superficial thoracic veins. There was likewise œdema of the lower extremities, and of the genitals, but no lividity. The pulse was 120 and regular, nearly but equally suppressed in the two radial arteries. No pulsation was to be felt in the arteries of the neck, but in the carotid a very faint systolic sound was audible, showing that feeble circulation was carried on in the cervical vessels. There was no dysphagia. On examining the chest, he found the heart was displaced vertically upwards to the third left intercostal space, and here the apex was felt to beat distinctly. In this situation, and over the entire anterior surface of the chest, a systolic bellows murmur was heard, but the point of greatest intensity was in the left second intercostal space, close to the sternum. The second sound was normal. The right side of the front of the chest was comparatively dull; respiratory sound nearly abolished

on this side, especially over the lower two-thirds, and vocal fremitus absent, except immediately beneath the clavicle. On the left side dulness likewise existed, except superiorly, and vocal fremitus was distinct only in the subclavicular region. Respiration was audible on both sides posteriorly, but less distinctly on the right, whilst comparative dulness existed on both sides.

Towards the end of September he became subject to occasional paroxysms of dyspnœa at night; the face, neck, and chest became tumid, and in the last degree livid, and the right hand and arm much swollen, the decubitus being dexter. Œdema had nearly disappeared from the genitals and lower limbs, and he died quietly on the night of the 7th of October. Dr. Hayden candidly confessed that when he first saw the patient in July, and for the second time in September, his impression was in favour of the view that there was an aneurism. Subsequent observation, however, showed him that his first view was probably not correct; and his doubts arose mainly from the following considerations:—First, the dulness in front was not associated with a corresponding impulse; second, there was *upward* displacement of the heart, and the murmur heard was most distinctly audible *above* the point of the apex pulsation. Third, the complete abolition of pulsation in the cervical vessels, and equally on both sides, was scarcely consistent with the existence of an aneurism in the situation indicated by the physical signs; and lastly, even if such were possible, an aneurism so situate could scarcely be unassociated with tracheal stridor and dysphagia. His opinion was in favour of the existence of carcinoma.

On making a *post-mortem* examination, he found both pleural cavities distended with serum. The very large carcinomatous tumour upon the table, occupied the anterior mediastinum, extending downwards to the ensiform cartilage, surrounding the orifices of the aorta and pulmonary artery, completely embracing them, and all but occluding the latter vessel. It projected by two nodular growths into the pulmonary artery, a short distance above the valves, and the left branch of that vessel was so constricted that it barely admitted a director. The arch of the aorta, from an inch above its valves, to the descending portion, was completely ensheathed in the solid scirrhus mass, and reduced to the size of an artery of the second order; its lining membrane was rugose; the innominate and its branches, and the left carotid and subclavian were likewise surrounded, and reduced by compression to the size of the brachial artery. The heart was somewhat hypertrophied; it weighed 11 ounces, but it was otherwise perfectly sound. The lungs were both engorged considerably, but were otherwise healthy, with one exception, namely, the root of the right lung was contracted and corrugated, being involved by extension of the cancer from the mediastinum; the œsophagus and trachea were not

engaged. He would only add, that the murmur heard in the second left intercostal space, traced to its seat and cause, constituted one of the most remarkable physical phenomena he had met with; it was a veritable systolic murmur in the pulmonary artery, due to the ingrowth of the cancerous mass into the interior of the vessel.—*April 13, 1872.*

On Propylamine. Communicated to the Royal Institution of Venice by DR. G. NAMIAS, and translated from the *Giornale Veneto di Scienze Mediche*, June, 1872, by GEORGE F. DUFFEY, M.D.

PROPYLAMINE is a product of the distillation of organic matters, discovered about twenty years ago, with which Dr. Awenarius, of St. Petersburg, obtained good results in the treatment of rheumatic patients, but afterwards was seldom or never used in the practice of medicine. Distinguished physicians with whom I have spoken, have assured me that they did not know it, and Professor Cantani, of Naples, writes^a that he has not yet tried it. I will not tell you by what accident we were led to test it, but I can assure you that its efficacy on the animal economy, and the effects which I have witnessed from it on many patients in hospital, promise, in my opinion, by its use a new, convenient, and harmless aid in combating disease.

Propylamine is composed of hydrogen, carbon, and nitrogen (C_6H_9N), and is most commonly made by distilling herring brine with caustic potash. To the distilled liquid is added, in sufficient quantity to render it neutral, hydrochloric acid, evaporating it then to dryness. Alcohol extracts the chloride of propylamine from the remaining material; and by adding lime to this alcoholic solution, and cooling the mixture, from twelve litres (21 pints) are usually procured 120 grammes (about four ounces, of the alkaline base. It is fluid, very volatile, colourless, of an ammoniacal odour, bitter taste, and soluble in water and in spirit. With acids it yields crystallizable salts.

Propylamine may, by other processes, be obtained from cod-liver oil, and also from human blood and urine, from *secale cornutum*, *chenopodium vulvaria*, and from other vegetable substances.^b I have prescribed it in doses of one gramme (fifteen grains) daily, divided into eight parts, one every two hours, in a liquid form—that is, by mixing it with 150 grammes of water and 20 of simple syrup (a little over five fluid ounces)—

^a *Manuale di Materia Medica e Terapeutica*, Vol. i., p. 826.

^b Propylamine was originally prepared by its discoverer, Wertheim, from narcotine, by decomposing it with soda or caustic potash.—*Ann. der Chem. u. Pharm.*, t. lxxiii., p. 208. For an interesting paper, by Winckler, on its preparation from ergotine and its chemical properties, consult *Pharmaceutical Journal*, Vol. xii., p. 42; *vide also*, Guibert, *Histoire des Nouveaux Médicaments*, 2nd ed., p. 300.—*Translator.*

in two cases of articular rheumatism, and in several of muscular rheumatism; and have noted in the former an unusual rapidity in the happy issue of the disease, and in all a recovery more prompt than I could have expected.

The effects of this pharmaceutical agent on the circulation of the blood and on the pulse principally attracted my attention, as it in a few hours diminished the number of the pulsations. On examining the temperature of the patients with a thermometer, in the axilla, I found it usually lower than the degree in which it was before they had taken the propylamine. And not alone the frequency, but also the volume, force, and fulness of the pulse decreased in a manner so rapid and marked, as to be totally different from the analogous effects produced by any other drug I am acquainted with. Digitalis and digitaline also cause these results, but much more slowly, and perhaps less clearly, and always accompanied by nervous derangements, and especially of the stomach, so that they are never given without some trepidation by cautious and honest physicians, who continually are sensible of such symptoms when they prescribe for their patients poisonous remedies, or, as one may prefer to say, of heroic efficacy. Of this efficacy of propylamine in moderating the sanguineous circulation, which numerous facts collected by me have placed beyond doubt, I have profited, by its use in those allied cases in which I had been in the habit of employing digitalis. I have pushed the propylamine up to two grammes (half a drachm) a day, and I will advance still further, as it has never, I will not say, disagreed with, but, not in the least inconvenienced any of my patients. The urine, by its administration, becomes more copious; and even in this respect, I do not hesitate to declare its being more valuable than digitalis. During their recovery from rheumatism, patients whom I have cured with propylamine have informed me of an unusual abundance of their urine; wherefore I have tried it in cases of vascular disease with dropsy. An old anasartic, in hospital, from cardiac hypertrophy and arterial lesions, takes it now to the extent of two grammes in the twenty-four hours. The pulse, hard and thrilling, has lost a part of the preternatural character, and the urine flows more abundantly. Even the cutaneous transpiration is often more copious.

I consider of the greatest advantage to science and the healing art the acquisition of a drug, a diuretic and a speedy moderator of the activity of the circulation, tolerated by young and old without inconvenience, and free from those hurtful consequences which other expedients that medical men have been compelled to have recourse to with the object of combating special symptoms of disease, leave after their employment.

I hope soon to be able to announce other useful applications of it according as they may be ratified by experience, the imprint of which is

necessary in every subject that concerns the healthy and diseased state, the appearances of which do not disclose their primary causes. We know now that propylamine has the effect of moderating the sanguineous circulation, and of increasing the renal, and even also the cutaneous secretion; but we do not know in what mode and by what means such a result occurs. We may discover with marvellous art the hidden alterations of the heart and of the vessels, but we do not know by what inward workmanship they advance or are arrested. We can, however, experiment, with presumption of good success, with propylamine in diseases in which one finds it opportune to promote the quantity of the urine and to check the force of the circulation, but we cannot exclude the fact that a particular mode of obtaining such results may in some one cause unpleasant effects which other remedies might not. Divers obscurely working causes concur in producing organic phenomena, and not being able to determine beforehand the part of each, the latter cannot be reproduced at pleasure, as a fact in mechanics by the application of a mathematical formula, therefore in medicine the best-ascertained rules meet with frequent exceptions.^a

Selections from Foreign Periodicals.

Translated by GEORGE F. DUFFEY, M.D., Dub.; L.K.Q.C.P., Irel.

Introduction of Ice into the Rectum in Narcosis from Chloroform (*Union Méd.*)—Dr. Baillée has observed, that there is no more active remedy in the narcosis from chloroform than the introduction of a piece of ice into the rectum. A gentle pressure is sufficient to relax the sphincter. The ice dissolves in the rectum, and immediately there is a deep inspiration—the precursor of the natural respiration and restoration of the cardiac functions. He recommends the same remedy in the apparent death of newly-born infants.—*Lo Sperimentale*, Feb., 1872, from *Riv. di Med. Chir. e terapia*, Jan.

Effect of Bromide of Potassium, employed in the form of a Lavement, in cases of uncontrollable Vomiting of Pregnancy.—Dr. Gimbert, after noticing the very variable forms and degrees of vomiting occurring during pregnancy, remarks, that in some women this generally trivial accident becomes a most serious and dangerous symptom, the patient sinking into a state of marasmus, or aborting. A lady in the third month of her second pregnancy was attacked with incessant vomiting, day and night. She could not tolerate even a drop of water. She complained of severe

^a Propylamine may be obtained in Dublin, from Messrs. J. J. Graham and Co., 30, Westmoreland-street.

pain in the stomach, chest and abdomen, violent headache, a sensation of burning along the œsophagus, and intense palpitation of the heart. An extreme thirst and obstinate constipation completed the symptoms.

Enemas of bromide of potassium, as well as of soup, were prescribed. The first day (fifth of the disease) the patient "absorbed" 6 grammes (a drachm and a-half), and the following night was quieter. Next day she absorbed 8 grammes (2 drachms). The vomitings were less frequent and not so painful. The third day she took 10 grammes, and from that time the vomitings were arrested. Dr. Gimbert has several times since administered the bromide of potassium by the rectum, in less severe cases it is true, but always with the same excellent results. He has never restricted the doses, and has always found them admirably borne.—*Bull. de Thérap.* and *Bull. de la Soc. de Médecine de Gand*, Mai, 1872.

Dr. Bailey, in the *Medical Record of New York*, quoted in *Lo Sperimentale*, Dec., 1871, relates the case of a woman, 3 months pregnant, who had suffered from constant vomiting for 3 days, and was consequently reduced to extreme weakness. She was ordered a teaspoonful of finely triturated raw beef three times a day. After the second spoonful the vomiting ceased.

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